ALSO IN OUR NEWS SECTION

- Microsoft expands patch management with Windows Update Services, but not soon enough for users. PAGE 5
- BrainShare preview: Novell appears to have new lease on life as it treads NetWare-to-Linux path. PAGE 10

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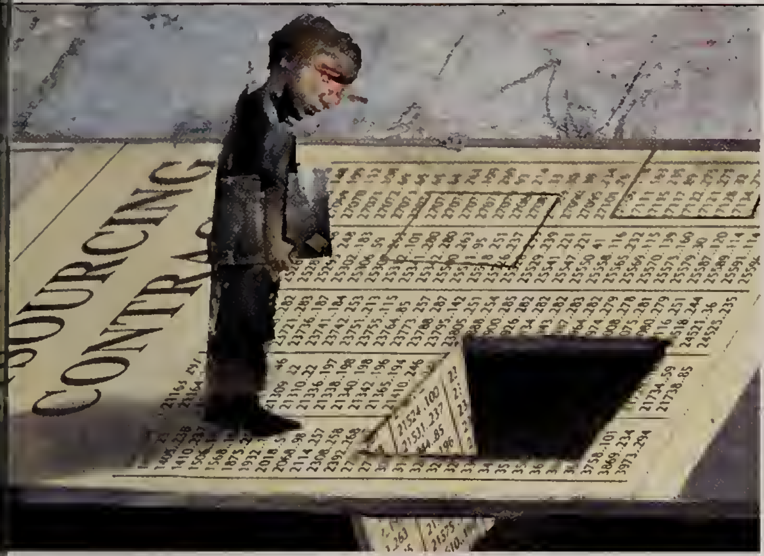

DAVID HOLLENBACH

OUTSOURCING Gotchas

Unwary users can be locked into bad outsourcing deals with fuzzy scope, high prices and no exit strategy. We've identified **12 HIDDEN TRAPS** in outsourcing contracts and, more importantly, how to avoid them. **PAGE 39**

Amtrak Lags in Implementing Security Technologies

Madrid attacks refocus attention on passenger rail system's vulnerability, lack of DHS funding

BY DAN VERTON
WASHINGTON

In the aftermath of the March 11 terrorist attacks that killed 201 train passengers in Madrid, some U.S. lawmakers and IT professionals are raising questions about the lack of security systems in place throughout the U.S. commuter rail system, particularly the federally subsidized Amtrak network.

In a letter sent to Secretary of Homeland Security Tom Ridge on March 12, Sen. Olympia J. Snowe (R-Maine) and Rep. Mike Castle (R-Del.) demanded an explanation for the imbalance between the billions of dollars in Department of Homeland Security funding earmarked for new security technologies at air and sea ports and the meager $115 million made available to protect railroads.

"We have continued to shortchange security for our nation's rail system," Snowe and Castle wrote in their letter. "More must be done to introduce improved security procedures and technologies to our rail system so we can be better protected."

A DHS spokesman said rail system security is primarily the responsibility of Amtrak and state and local authorities. The spokesman also acknowledged that Amtrak passengers

Amtrak, page 51

ONLINE
Concerns about Amtrak security date to 9/11 aftermath: QuickLink 33949

Big Four Accounting Firms Join in Cyber-Risk Effort

Create index to gauge firms' preparedness

BY JAIKUMAR VIJAYAN

A consortium of companies that includes the Big Four accounting firms and at least one large insurer is quietly working on a cybersecurity risk measurement framework for large enterprises, *Computerworld* has learned.

The Risk Preparedness Index is being developed by the newly formed Global Security Consortium, which so far includes PricewaterhouseCoopers, Ernst & Young LLP, Deloitte & Touche LLP, KPMG International and insurance giant AIG International Inc.

The RPI was originally being developed to provide a risk measurement model for use within the insurance and accounting industries. But the goal now is for the index to provide the basis for a much more broadly applicable system for measuring and rating organizational risk preparedness, according to a source close to the GSC.

The GSC has been in active discussions with several industry groups, including The Open Group standards body, for several months in a bid to gain endorsements and wider support for the effort to build the framework.

A GSC spokesman declined to comment on the current status of that effort. But the source close to the body con-

Risk Index, page 51

Risk Preparedness Index

- **WHAT:** A standard framework for quantitatively measuring and rating a company's cyber-risk preparedness.
- **WHO:** The Global Security Consortium, which includes the Big Four accounting firms and at least one insurance company, are developing it.
- **WHY:** Few standard tools exist for rating cyber-risk preparedness today.
- **WHEN:** To be released sometime this summer.

Users Lobby for MPE Support

Prod HP to release its e3000 OS source code

BY PATRICK THIBODEAU

Users of Hewlett-Packard Co.'s doomed e3000 system are pushing the company to act quickly to release its proprietary operating system source code to keep it from being frozen in time once the company cuts support at the end of 2006.

Users and independent e3000 consultants are asking HP to agree to a plan to license the MPE operating system source code this year to a third party such as OpenMPE Inc., a user advocacy group in Hagerstown, Md.

"There is clearly a business case for continuing MPE's life beyond 2006," said Donna Garverick, who administers e3000 systems at Longs Drug Stores Corp., a 470-store chain based in Walnut Creek, Calif., and who is involved with OpenMPE. "You are going to have customers, some of notable size, who will still be running MPE, and having an organization to support MPE is important."

Even though the deadline to

HP e3000, page 16

NEWSPAPER

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CONTENTS

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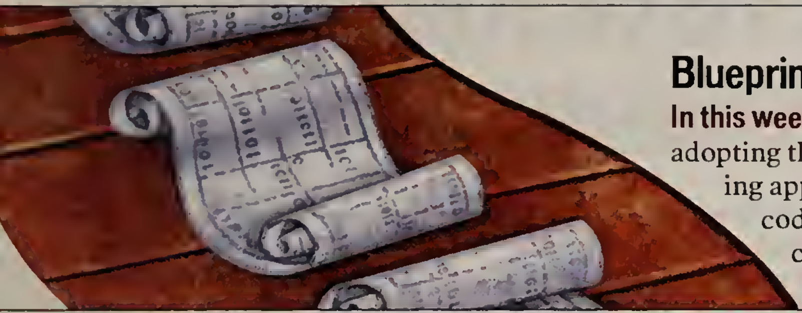

Blueprint for Code Automation

In this week's Technology section: Some companies are adopting the Model Driven Architecture approach to building applications to achieve benefits such as automatic code generation, reductions in development time and costs, and improvements in code quality. **Page 25**

Play War!

In the Management section: War games can make strategic planning come to life and help companies simulate business moves such as making strategic IT investments — as well as competitors' countermoves. **Page 42**

NEWS

4 **PeopleSoft announces** an upgrade of its World green-screen applications.

4 **EDS sells off** its product life-cycle management unit.

5 **Microsoft users make** a short-term demand: better patch management.

5 **Longhorn** will arrive no earlier than 2006, a Microsoft executive says.

8 **Computerworld's** Maryfran Johnson wins a national award for editorial integrity.

10 **Novell's embrace of** Linux revitalizes the company in the eyes of some users.

10 **TOEs,** or TCP/IP offload engines, start to make inroads into iSCSI-based SANs.

14 **The SEC seeks** feedback on possible new rules to automate stock-trade processing.

14 **Cisco bulks up** its Catalyst switch line, including support for 10 Gigabit Ethernet.

15 **CRM users tout** the benefits of the technology — if it's used in the right way.

15 **The lack of alignment** between IT and business units is a two-way street, according to a survey of tech execs.

16 **IT professionals need** a mix of industry-specific skills and a multidisciplinary background to keep their jobs as more work is moved offshore.

TECHNOLOGY

30 **Emerging Technologies: SANs Come Up to Speed.** Two new high-speed Fibre Channel standards could provide a migration path as SANs ascend to 10Gbit/sec. speeds.

32 **Q&A: Innovation for Hire.** Sarnoff Corp. CEO Satyam Cherukuri discusses his company's innovation methodology and why it has little to do with "hot" technologies.

34 **Future Watch: Chameleon Computing.** Reconfigurable computing architectures involve processor hardware that automatically adapts to changing application needs.

36 **Security Manager's Journal: Security Tools Search Falls Short.** Identity management and encryption tools demonstrated at a security trade show fail to impress Mathias Thurman.

MANAGEMENT

39 **Outsourcing Gotchas.** Savvy lawyers have identified 12 of the biggest traps in outsourcing contracts — from having a fuzzy scope to lacking an exit strategy — and how to avoid them.

44 **Career Watch.** Vince Campitelli describes the work of IT auditors at Wachovia Corp. and offers career advice for IT professionals considering a move into IT auditing.

OPINIONS

8 **On the Mark: Mark Hall** reveals why Web server load-balancing products are on the outs.

22 **Maryfran Johnson** warns IT managers that they may have to fork over a lot of money to make privacy advocates happy.

22 **Pimm Fox** has an answer for companies that wonder how to go about managing their expanding and diversifying storage infrastructures.

23 **Thornton A. May** discusses three techniques for planning for the future that are inexpensive to deploy.

38 **Tommy Peterson** laments that as technology has lost some of its cachet over the past few years, IT departments' status has declined.

45 **Norbert J. Kubilus** backs leasing: You get predictable payments and asset management, and the leasing company assumes the risks of managing IT obsolescence and disposal.

52 **Frankly Speaking: Frank Hayes** says getting your department educated and ready for RFID can now be done on the cheap.

DEPARTMENTS/RESOURCES

At Deadline Briefs 4
News Briefs 8, 14
Letters 23
IT Careers 46
Company Index 50
How to Contact CW 50
Shark Tank 52

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Foiling a Hacker's Delight

MOBILE/WIRELESS: How to implement an in-depth defense to protect the corporate network against threats associated with remote and mobile workers. **QuickLink 45354**

Cache or Carry?

STORAGE: Companies that need to consolidate their data over WANs can choose between file-caching technologies and WAN optimization, writes Val Golan of Golan Consulting. **QuickLink 45361**

Avoid the Career Doom Loop

CAREERS: If you don't constantly demonstrate your value to your company, people will forget what you're doing and why you're there. To avoid the doom loop at work, take personal responsibility to ensure that you're always adding value. **QuickLink 45178**

'Trusted' Digital Insider Theft

SECURITY: When credit card numbers, customer records or source code are lifted from your company in broad daylight, that's extrusion. IT veteran Danny Lieberman suggests where to look for potential sources of extrusion at your company. **QuickLink 45044**

Web-based Mail and Security

SECURITY: Many companies are skittish about Web mail because of security concerns. Consultant Keith Pasley takes a look at options for deploying secure Web mail at your company. **QuickLink 45181**

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The Online Store
QuickLink a2420

AT DEADLINE

Microsoft, European Officials End Talks

Antitrust settlement talks between Microsoft Corp. and the European Commission broke down last Thursday, and European competition officials this week plan to ask the commission to rule that Microsoft has abused its desktop operating system monopoly. The regulators will also propose a series of restrictions on Microsoft's future business conduct. The software vendor said it will appeal the expected decision.

3Com Reports Loss

3Com Corp. in Santa Clara, Calif., reported that it remained in the red during its third quarter and that revenue fell 21% year over year. The company said it expects fourth-quarter revenue to be similar to the total from the third quarter, which ended Feb. 27.

	REVENUE	PROFIT
Q3 FY04	$171.8M	($85.6M)
Q3 FY03	$216.5M	($79.2M)

SEC Fines Lucent

Lucent Technologies Inc. said it will pay a $25 million fine to the U.S. Securities and Exchange Commission as part of a deal signed early last year to settle an accounting investigation. Lucent initially wasn't fined, but the company said the SEC's staff has decided that it should be penalized for a lack of cooperation during the investigation. Murray Hill, N.J.-based Lucent added that it doesn't plan to contest the fine.

Short Takes

Dallas-based I2 TECHNOLOGIES INC. said it plans to lay off an undetermined number of workers as part of a restructuring aimed at reducing operating expenses by about 10%. . . . IBM said it was tapped by the U.S. DEPARTMENT OF DEFENSE to help develop policies for the use of RFID devices by military suppliers.

PeopleSoft Updates World Green-Screen Applications

Adds Web interface to J.D. Edwards line

BY MARC L. SONGINI

IN A MOVE AIMED at keeping a large part of its expanded installed base happy, PeopleSoft Inc. is rolling out a refresh of the World green-screen applications that the software vendor inherited when it bought J.D. Edwards & Co. last summer.

ALL ABOUT APPS

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PeopleSoft last week announced a Web-based user interface and various other new features for the World line, which is still used by nearly half of J.D. Edwards' 6,700 customers. The upgrade follows the launch last fall of a pro-World lobbying campaign by a group of users who said they didn't want the software to be treated as a cash cow while PeopleSoft tried to migrate them to its other applications [QuickLink 42316].

Positive Response

"We're pleased PeopleSoft has brought some new vigor into the World line," said James Berlekamp, applications manager at tableware maker Libbey Inc. in Toledo, Ohio. Libbey runs a suite of World software, including the human resources and payroll modules. Berlekamp noted that J.D. Edwards had allowed the World line to wane, forcing Libbey to write some of its own bug fixes and functionality enhancements.

The Web-based user interface could help the company cut down on software administration costs, he said, adding that he hopes PeopleSoft will consider additional improvements to make World's warehouse and inventory management software run more efficiently.

The new user interface was the most requested feature, said Dave Siebert, general manager of the World product line. It will be available at the end of this month. PeopleSoft is also adding about 250 other enhancements, mostly focused on ease of use and regulatory compliance. For example, tighter integration will let users feed sales order information directly into World's manufacturing and distribution management software, Siebert said.

"This is a boost [for World]," he said. "We've been able to, as part of PeopleSoft, get more resources and been able to add more people to development."

"Any movement in this space is appreciated," said Gary Riley, a systems analyst at Matanuska Telephone Association Inc. in Palmer, Alaska, and a member of the Quest user group for J.D. Edwards customers. Riley said he's interested in the Web user interface and the tighter integration between the distribution and sales order applications.

World runs only on IBM's iSeries servers (formerly the AS/400 line), while the newer, midmarket-oriented EnterpriseOne software that PeopleSoft got from J.D. Edwards supports multiple hardware platforms. PeopleSoft also announced an upgraded version of the EnterpriseOne applications last week (see box).

NEW FEATURES

EnterpriseOne 8.10

- A real estate management application that **streamlines the tracking** of leases, budgets and other property-related data
- A financial management tool for **creating multiyear forecasts** to help reduce business risks
- Asset life-cycle management software to **automate the process** of ensuring that equipment is used efficiently

John Matelski, deputy CIO for the city of Orlando, isn't a World user. But after conducting an informal survey of 10 World customers, Matelski, who is a member of Quest's board, said "the overriding sentiment . . . seems to be that they're pleased that long-awaited progress is finally being made." **45589**

EDS Product Life-Cycle Management Unit Sold

BY JAIKUMAR VIJAYAN

Users of UGS PLM Solutions software can expect to see the company partner with more global systems integrators and service providers, a UGS official said last week in the wake of its sale by parent Electronic Data Systems Corp.

The sale is also unlikely to cause any disruptions for customers of UGS's product life-cycle management software, the executive added.

EDS last week announced the sale of its UGS PLM subsidiary to three private equity firms in a transaction valued at $2.05 billion. Under the deal, Bain Capital LLC in Boston, Silver Lake Partners LLC in Menlo Park, Calif., and Warburg Pincus LLC in New York will each hold an equal investment in UGS.

Being cut loose from EDS will allow UGS PLM to attract more services partners that might otherwise have stayed away, said Robert M. Nierman, executive vice president of business strategy at UGS.

"Being part of EDS made it difficult for us to entertain serious discussion about global partnerships," he said. "This opens the door for stronger partnerships, though EDS will remain a key partner for us."

Being independent will give UGS the "ability to act more like a software company" instead of the more services-led business it had become as an EDS subsidiary, said Ed Miller, an analyst at CIMdata Inc. in Ann Arbor, Mich.

"In the near term, they need to reinforce to their customers that their direction is consistent with what they have been saying" prior to the sale, Miller said. The UGS business, with nearly $900 million in revenue, was a profitable one for EDS. But it will need to work on raising its market visibility after having a relatively low profile as an EDS unit, Miller added.

PLM Portfolio

UGS PLM sells the following products:

- **Teamcenter:** Core PLM suite
- **Unigraphics NX:** 3-D product engineering software
- **I-deas:** Integrated CAD/CAM/CAE product
- **E-factory:** Preproduction information management

"Everyone we have talked to from the EDS side has assured us that this is going to be completely transparent," said John Loo, senior manager of technical computing at a California-based sporting goods company that is a longtime user of UGS PLM products. Loo requested that his company not be named.

EDS's sale of its UGS PLM subsidiary comes at a time when the PLM industry looks poised to grow, said Andrew Balson, managing director at Bain Capital. After years of slow growth, the market for product life-cycle management software has reached an "inflection point," Balson said.

"We think the technology today is mature enough and the customers are mature enough that we are going to see very significant growth," he said. **45592**

Users Want Microsoft to Feel Patch Management Urgency

New Windows Update Services gets eager looks

BY CAROL SLIWA
LAS VEGAS

Users of Microsoft Corp.'s management products showed keener interest in short-term deliverables than in the long-term strategic initiatives that the company outlined here last week at its annual management conference.

They packed sessions on Systems Management Server (SMS) 2003 and the newly renamed Windows Update Services, formerly called Software Update Services (SUS).

Although the acronym for the new edition — WUS — drew chuckles, attendees expressed serious interest in the free service that can help them patch not only Windows but also Office 2003 and XP, SQL Server and Exchange Server. The ability to update other Microsoft products will be added later this year, said Steve Anderson, a director of Windows server marketing.

In contrast to SUS, the new version will also let users target individual computers or groups of computers, get basic reports about which computers have been patched, and download only patch bits that represent changes to the system, Anderson added.

However, the delayed availability of WUS was a letdown for some attendees. CEO Steve Ballmer pledged last October that the patch management services would be available in the first half of this year, but Microsoft officials last week said they won't be ready until the second half. A limited beta was released last week to about 200 customers, according to a Microsoft spokeswoman.

"I was a little disappointed," said Scott Sikes, manager of open systems operations at Compass Bank in Birmingham, Ala. "We wanted to look at it because we're also looking at several third-party products. Patch management is a pretty big issue, especially in the financial realm."

Two products that are on track to ship in the second half of this year as originally planned are Microsoft Operations Manager (MOM) 2005 and System Center 2005. The products were tagged 2005 because Microsoft plans to adopt a new naming convention, labeling offerings due in the second half with the subsequent year's date, according to Bob Muglia, senior vice president of the Windows Server division.

Weighing the Need

System Center 2005 is an integrated management suite that includes SMS, MOM and a new common reporting system. Microsoft last week also unveiled new details about the second version of System Center, including a wizards-based capacity-planning tool codenamed Indy.

Although several users at companies that already operate both SMS and MOM said they're intrigued by the new capabilities, some from larger companies said they don't think they will have reason to seek out the new, integrated product.

"Unless we undergo some sort of change in products, I don't see it coming into our organization," said Clark Ardern, a technical director at CNA Insurance in Chicago. He noted that CNA uses operations management products from NetIQ Corp. and Hewlett-Packard Co. rather than MOM.

The long-term vision for System Center is far more ambitious than the initial version due out this year. Version 2 will support the XML-based System Definition Model (SDM), which is intended to help developers, operations managers and users better communicate about application resources and requirements.

A design preview of SDM, which is a core piece of Microsoft's Dynamic Systems Initiative (DSI), was unveiled earlier this month to a select group of partners and large customers. SDM is expected to be released in the first half of next year along with Visual Studio 2005, and it will later be supported in the second version of System Center, which is due no sooner than 2006, according to Muglia.

But the full DSI vision isn't expected to be realized for several years, and some users said that even though aspects of it look interesting, it's too far off for them to give it serious attention.

Rick Derks, director of information services at Farm Credit Services of Missouri in Jefferson City, said DSI represents "a whole different way of doing things," not just a new software and hardware infrastructure. He said it will require organizational change and the education of developers, managers and users about the tools supporting SDM. 45593

Microsoft Management Update

WINDOWS UPDATE SERVICES: The renamed new edition of Software Update Services, for patch and software update management; the beta was released last week. It can now be used for SQL Server, Exchange Server, Office 2003 and Office XP, in addition to Windows.

SYSTEM CENTER 2005: A private beta was released last week; the integrated management suite will include Systems Management Server 2003, MOM 2005 and a new common reporting engine.

SYSTEM DEFINITION MODEL (SDM): The first design preview of the XML-based application manifest was unveiled to 150 partners and large customers for feedback; SDM is core piece of Microsoft's Dynamic Systems Initiative.

MICROSOFT OPERATIONS MANAGER (MOM) 2005: Formerly known as MOM 2004; a beta was released last week. New features include wizard-based installation, a task-based user interface and visual of display of servers and applications. A beta of the lower-cost MOM 2005 Express was also released.

MOM MANAGEMENT PACKS: They were released from Siebel Systems, Veritas and Hitachi, in addition to Microsoft connectors for IBM Tivoli and HP OpenView.

SYSTEMS MANAGEMENT SERVER 2003 FEATURE PACKS: Beta versions were released last week of packs for managing devices running Windows CE, Windows Mobile-based Pocket PC and Smartphone software.

Muglia: No Longhorn Before 2006

LAS VEGAS

Microsoft executives have been fuzzy on the expected ship date for the next major version of Windows, and they have raised the possibility of newly packaged editions of the current client and server versions.

Bob Muglia, senior vice president of Microsoft's Windows Server division, last week discussed the company's options for Windows and its upcoming management offerings.

Is there going to be a Release 2 of Windows Server 2003? There's a set of innovations that have been under development. We want to get those into customers' hands. Exactly the vehicle we're going to do that, we're still working on the specifics.

When is the next major Windows release, codenamed Longhorn, coming? 2006 is the earliest time frame we're looking at.

Is it likely that the client and server will ship at different times? They will almost always ship at different times in the future. Clients need slightly less bake time than servers do.

Is 2006 applicable to the Longhorn client and server? I can't speak as much for the client pieces.

Some analysts talk about Longhorn server arriving in 2007. Is that likely? It's too early to say for sure.

Is it possible that Longhorn features will turn up in Release 2 of Windows Server 2003? There are three major pillars for Longhorn. One is the new user interface pieces in the Avalon UI, the graphical UI. Another is WinFS [storage]. And the third is the Web services infrastructure in Indigo. . . . At this point, it doesn't look like any of those things could possibly ship any earlier.

Windows Update Services was due in the first half of this year. Now it's expected in the second half. What happened? We started looking at the features that our customers needed to get these patches rolled out effectively, and frankly, we've added functionality to Windows Update Services over the last six months. For example, we added the ability to install patches at the time a user shuts down a system.

Last year, Microsoft officials said Version 2 of System Center would be ready in 2005. Is that still the case? We'll be in beta for sure in 2005.

Is it likely to be ready in 2006 then? I think it is likely 2006.

– Carol Sliwa

MORE ONLINE

Head to our Web site for the full Muglia interview:
QuickLink 45522
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BRIEFS

Sun Execs Detail Software Plans

Sun Microsystems Inc. plans to ship a version of its Java Enterprise System software for Red Hat Linux within 60 days and add Windows and HP-UX releases by year's end. Executives said Sun will also detail a road map for identity management tools in the next 60 days. [For more details, go online: QuickLink 45507].

Nortel Places CFO, Controller on Leave

Nortel Networks Ltd. said it has put its chief financial officer and controller on paid leaves of absence while an audit committee reviews the company's financial results for last year. The leaves of absence were initiated one week after Nortel disclosed that it likely will have to revise the 2003 results.

Veritas to Restate

Veritas Software Corp. said it will restate its financial results for 2001 and 2002 after an internal investigation showed shortcomings in its accounting practices for those years. Veritas will also revise its results for last year.

MARK HALL ▪ ON THE MARK

Server Load Balancers Obsolete in . . .

. . . less than two years. **That's the prediction** of Craig Stouffer, marketing vice president at Redline Networks Inc., who claims that multifunction appliances are clearing out the clutter of "Web tier front-end systems." Stouffer says that his Campbell, Calif.-based company's release on March 31 of the Redline E|X Version 3.3 all but puts the nail in the coffin of single-minded load balancers for large-scale Web operations. Not unlike the folks at Santa Clara, Calif.-based NetScaler Inc. mentioned here last week [QuickLink 45413], Redline is packing SSL acceleration, HTTP security, authentication and authorization features into its box along with caching, connection management and server load balancing. The new release also **adds self-healing mesh technology** to a rack of up to 64 of these appliances so no site visitor ever loses his place online, even in the midst of entering data on a page. If a Redline box crashes in the middle of a transaction, another slips in to complete the deal. The 3.3 upgrade is free to existing users. ▪ **While on the subject of free,** bookmark *www.globalspec.com*, a great technology information site. Run by GlobalSpec Inc. in Troy, N.Y., the site caters to the engineering-oriented looking for details on all manner of tech gear. It maintains catalog data from 10,000 high-tech firms in its database, which you can search for free. On Thursday, the company will add The Engineering Web to its information motherlode. It indexes 100,000 technology Web sites containing **20 million pages of mind-numbing data** that you can't live without. CEO Jeff Killeen says that technologists get frustrated by searching online with general-purpose search engines. "When you do a search on *gyros*, you don't want to see information on sandwich shops," he quips. (Of course, that would depend on how hungry you are.) Unlike Google and other search companies that take money from vendors to place their information at the top of search results, GlobalSpec lists its discoveries in alphabetical order. "We couldn't think of a fairer way," Killeen says. Fair enough. ▪ **Need a new hobby? How about spam revenge?** That's one of the side benefits behind the release of the antispam tool Spamfire 1.5 for the client, with a server version due by summer and a hosted Spamfire option ready next month. Michael Herrick, CEO of Matterform Media Inc. in Espanola, N.M., said Spamfire can send an untraceable response to spammers, pestering them with a nonsense message every 10 seconds. The software also includes **the spam crime reporter** feature that manages your endless unsubscribe clicks and tracks down spammers that have illegally ignored your request. As Herrick puts it, **"The CAN-SPAM Act actually legitimizes spam,"** but you can at least use the one tough provision of the legislation, the legal muscle now behind unsubscribe compliance, and get more than simple revenge. You might get some lawsuit money as well. ▪ **Once hackers steal passwords** they can get to sensitive data on your systems from any PC in the world. For now. Later this year expect to see PC suppliers that use core system technology from Phoenix Technologies Ltd. in Milpitas, Calif., preload their computers with Trust Connector, which encrypts a unique and changing key into the system's read-only memory. Servers can request the key from the PC or laptop to ensure that not only is the password acceptable, but the machine is, too. ▪ Ektron Inc. in Amherst, N.H., is well under way turning its content management software into a top-to-bottom .Net application. The CMS400.Net product will be ready by June, says CEO Bill Rogers. He says **going all .Net makes the application more secure** since you can define the rights of all .Net code. COM objects, on the other hand, can run amok on a server if accessed by hackers or malcontents. **45582**

Smooth as Silk

If your Citrix MetaFrame or Oracle Forms applications are running roughly, consider SilkPerformer 6.5. The nonintrusive testing tool will add those environments to its capabilities when the upgrade ships this week from Segue Software Inc. in Lexington, Mass. Not only do you get load tests for performance but also you'll have real-time app monitoring. Pricing starts at $30,000.

Computerworld's Maryfran Johnson Recognized for Editorial Courage

BY DON TENNANT
NEW YORK

Computerworld editor in chief Maryfran Johnson last week was honored with a national business journalism award in recognition of her steadfast adherence to the "goal of placing readers first and maintaining independent, honest, and ethical journalism."

The Timothy White Award was presented to Johnson at an American Business Media luncheon here. Johnson was the first recipient of the prestigious award, which made its debut at the 50th Annual Neal Awards ceremony held to recognize excellence in business journalism.

The award was named for the longtime editor of *Billboard* magazine who was considered the conscience of that publication and who succumbed to a heart attack in June 2002. It was presented to Johnson by White's widow, Judith Garlan White.

The award cited several demonstrations of Johnson's courage and integrity, including a June 2001 editorial on Oracle Corp.'s decision to cancel a large amount of advertising after *Computerworld* published a series of articles on Oracle's unpopular pricing policies [QuickLink 21296]. Also cited was an October 2003 editorial titled "Ethics and Influence." In it Johnson, prompted by a *Computerworld* story on ethical questions raised by Microsoft Corp.'s sponsorship of a Forrester Research Inc. report, drew attention to the role played by the media itself and its "spotty record in asking enough of the right questions about the pedigree of the research we report on" [QuickLink 42153].

"Upholding the editorial integrity of the work *Computerworld* does is already a privilege for me, as is leading the outstanding group of journalists we have here," Johnson said. "This award is a great honor for us all, but it's also a wonderful reminder of how important it is to keep our readers foremost in everything we do."

CW'S MARYFRAN JOHNSON won the Timothy White Award.

"This is testimony to our editorial mission to be the voice of IT management," said Bob Carrigan, CEO of Computerworld Inc. "We want to be the most trusted source for IT management, and it's gratifying that such a prestigious organization feels that our editorial leader stands above all others in terms of trust and integrity in journalism."

Also at the Neal Awards ceremony, *Computerworld* was honored as a finalist in the category "Best single issue of a newspaper/news tabloid" for its July 7, 2003, issue. **45605**

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Network Associates

Linux Push Breathes New Life Into Novell for Some IT Execs

Users give NetWare another chance; product integration moves on tap

BY MATT HAMBLEN

ATTENDEES AT Novell Inc.'s BrainShare conference this week will hear more product announcements related to the company's Linux strategy, but the bigger news may be the smiling faces of Novell officials and many users.

The reason: After suffering through a protracted period of decline, Novell and its flagship NetWare technology have acquired new life following the company's purchases of Linux software vendors Ximian Inc. and SUSE Linux AG, several users and analysts said.

In fact, some users who previously had bad impressions of Novell are now buying its products because of its Linux-oriented strategy, said James Taylor, a consultant at The East Cobb Group Inc. in Marietta, Ga. For example, Taylor said, a medical device maker that he wouldn't name is installing six NetWare-based servers for file and print functions, plus six Linux servers that are running NetWare services under the open-source operating system.

Boscov's Department Store LLC in Reading, Pa., gave up on NetWare several years ago, said Joe Poole, manager of technical support at the 40-store retail chain. But he and other IT managers at Boscov's met with a Novell salesman last week to discuss, among other things, the possible use of Linux on its 1,200 desktops.

"We did write Novell off with NetWare," Poole said, noting that Boscov's primarily migrated to Windows-based servers. "But I'm more excited about SUSE than ever before because of Novell's purchase of them." He added, though, that SUSE users may have to pay higher prices to Novell.

A spokesman for Novell wouldn't disclose details about product announcements due to be made at BrainShare, which is being held in Salt Lake City. But he said Novell plans to highlight "synergies between the products of companies" it has acquired.

Taylor said he expects Novell to announce that it has integrated its ZENworks management software with Ximian's Red Carpet Enterprise tools to offer improved management of Linux PCs, a pairing that several users are also anticipating.

Earl Perkins, an analyst at Meta Group Inc., said users should also expect products that bring together pieces of the technology Novell has acquired with its security, identity management and Web application development software.

More centrally, however, Novell's Linux drive has refocused the company and revitalized its core NetWare services as a companion to SUSE Linux, Perkins said. "This gives promise to anybody who wants to listen that there is an operating system on par with Microsoft for Linux," he added. "I see a lot of spring in the step at Novell."

Still, some users will have pointed questions for Novell executives at BrainShare. For example, George Raetzke, a senior systems programmer at Northern Illinois University (NIU) in DeKalb, said he wants to know "exactly what are the pluses and minuses of running different NetWare services on the NetWare or the Linux kernel. Of course, that's politically a hard thing for them to answer."

Raetzke wants to be able to justify moving NIU's NetWare services to Linux but can't if "we have to spend hundreds of man-hours to get something that provides only a 3% improvement in performance."

Buying SUSE "was definitely a good direction" for Novell to take, said Brad Staupp, a senior support analyst at Johnson County Community College in Overland Park, Kan. He added that he's worried about centralized desktop management, but he hopes that will be addressed by the expected integration of ZENworks and Red Carpet. **45596**

NEW SOFTWARE

Novell announced these products at last week's CeBIT show in Germany:

- **SUSE Linux 9.1 Personal and Professional** editions, both based on the Linux 2.6 kernel. **Priced at $29.95 and $89.95, respectively.**
- **GroupWise 6.5**, an upgrade of Novell's end-user collaboration software that will run on Linux separately from NetWare. **No charge for existing GroupWise users.**
- **ZENworks Patch Management**, an add-on to ZENworks systems management software. **Priced at $18 per device.**

Users Look to Cut Storage CPU Utilization With Network Cards

TOEs installed to reduce TCP/IP processing loads

BY LUCAS MEARIAN

Network interface cards that can open up more bandwidth for transporting data between storage devices and application servers are making inroads with corporate users, as prices fall and the Internet SCSI protocol catches on.

Users and analysts said prices for the TCP/IP offload engines, or TOEs, have fallen below $500 in some cases, down from about $1,000 when they emerged two years ago.

Some IT managers said they're waiting for broader adoption of the iSCSI data transport protocol before installing TOEs on high-end servers. But using the cards on smaller systems makes sense at current prices, they added.

Mike MacNeill, director of technical operations at Cross Country Healthcare Inc. in Boca Raton, Fla., said he's using six iSCSI TOEs made by Adaptec Corp. to cut the CPU utilization on his Microsoft Exchange e-mail and Oracle database servers by up to 15%.

The systems are backed up to two Network Appliance Inc. file servers over an iSCSI-based storage-area network, which MacNeill said he chose because it's five times less expensive than a Fibre Channel SAN and far less complex.

"The only reason we're buying TOE cards is because of iSCSI," MacNeill said. The amount of data that the health care staffing firm needs to store on its SAN is growing rapidly. "Especially with Sarbanes-Oxley driving [e-mail retention], we expect to hit close to 10TB of capacity by the end of this year," he said.

Tony Asaro, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said the combination of iSCSI and TOEs is becoming more widely deployed. Asaro said he knows of more than 300 iSCSI SANs in production use, although he didn't have any statistics on TOE adoption.

Alacritech Inc. in San Jose this month released a TOE that uses Microsoft Corp.'s iSCSI driver and has a list price of $599. Intel Corp. and Adaptec in Milpitas, Calif. released similar products last year at prices ranging from $400 to $600.

Analysts said TOE technology should receive another boost when Microsoft ships a native software driver that will provide a standard interface between the devices and server versions of Windows. But that's not imminent. Microsoft said the TOE architecture is due for delivery at about the same time as the Longhorn version of Windows, now expected in 2006 (see story, page 5).

Joseph Meier, chief technology officer at Stargate Digital in South Pasadena, Calif., is using Alacritech TOEs on 16 of his file servers with direct-attached storage in an effort to reduce CPU utilization by up to 60% while transmitting video streams to TV networks.

The visual-effects company moves a large number of high-resolution video frames, Meier said. "Consequently, our servers were spending a lot of time doing TCP/IP housecleaning."

Meier said the TOEs have generated a return on investment by eliminating the need to install a Fibre Channel SAN. "So far, they've proven their utility," he said. **45398**

TCP/IP Offload Engines

- **Typically cost about one quarter the price of Fibre Channel host bus adapters**
- **Use Ethernet networks to transport block-level data**
- **Can offload up to 60% of TCP/IP-related processing from an application server's CPU**
- **Support encryption technologies, such as the IPSec protocol**

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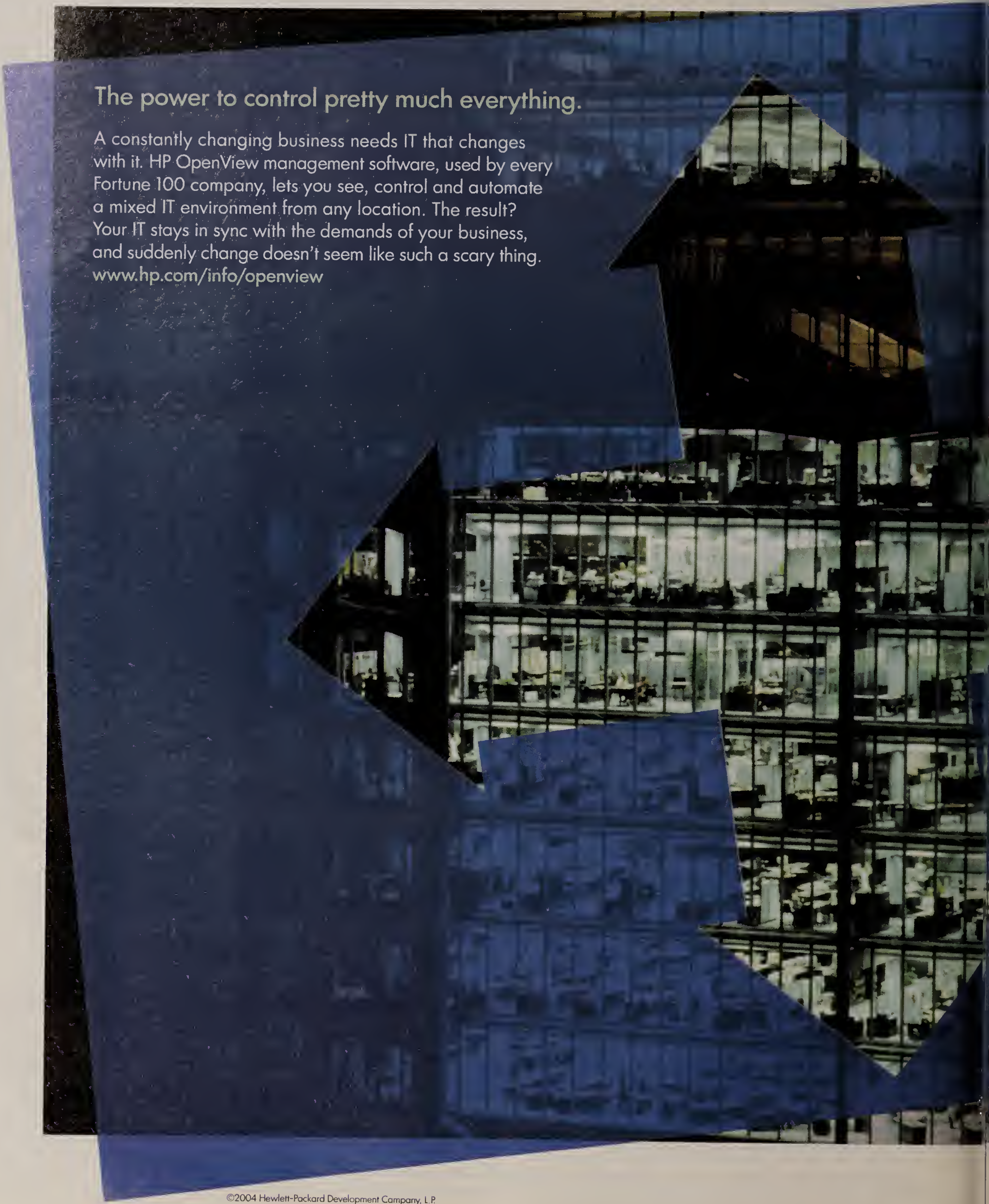

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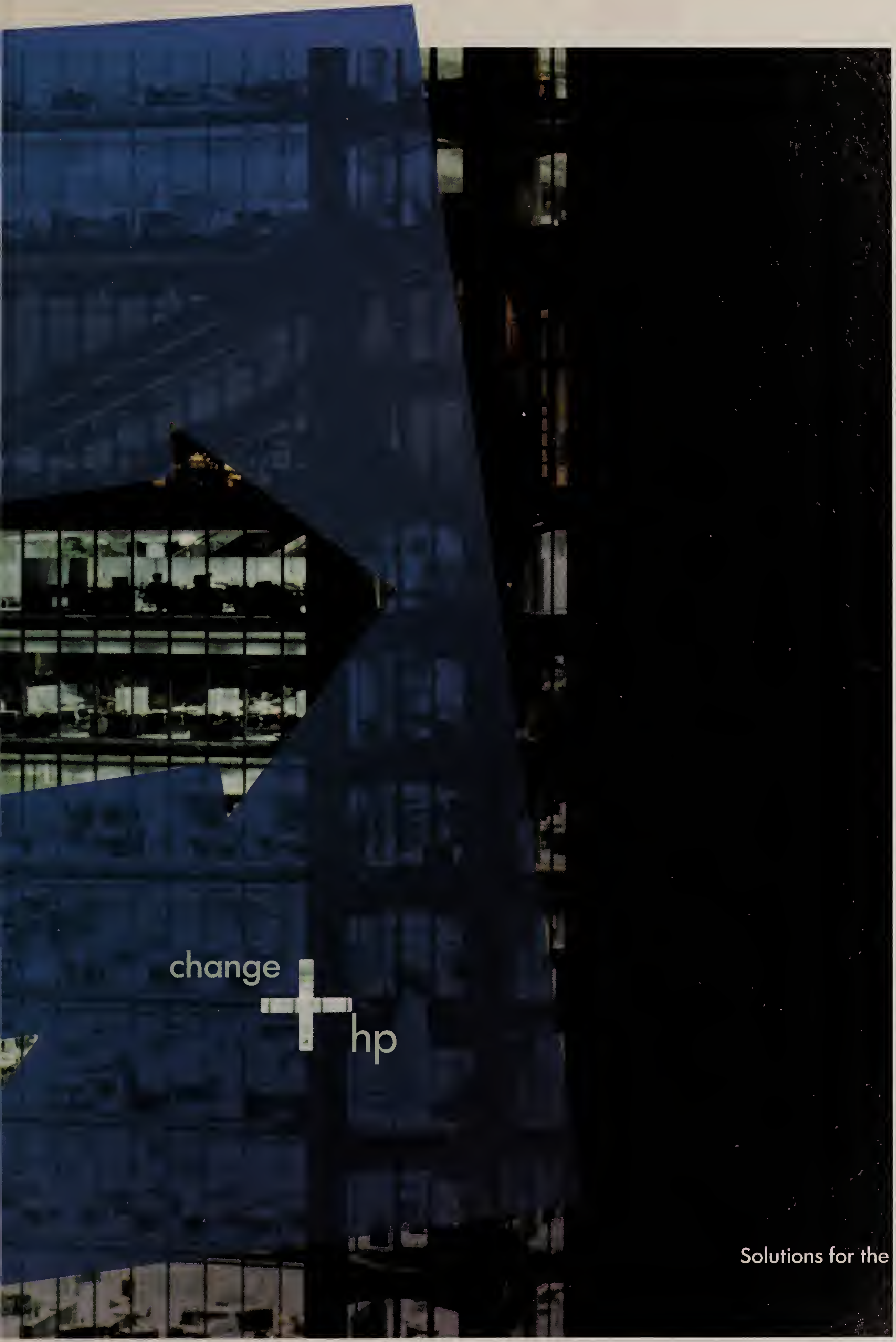

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BRIEFS

IBM Sets Target of 40,000 Linux PCs

IBM hopes to have 40,000 internal desktop Linux users by year's end as part of a push to install the open-source operating system on its client devices [QuickLink 44121], said Scott Handy, IBM's vice president of worldwide Linux strategy. But some users may not save money by switching to Linux PCs, Handy added while speaking at the Open Source Business Conference in San Francisco.

European Officials List Oracle Concerns

The European Commission confirmed that it has sent Oracle Corp. a statement of objections about the company's proposed takeover of PeopleSoft Inc. The statement, a normal part of merger reviews by the commission, lists reasons why the hostile bid could harm software competition in Europe. Oracle said it was "pleased to have clarity on what the commission's key issues are."

Microsoft Aims to Localize XP, Office

Microsoft Corp. said it plans to work with government bodies in various countries to make Windows XP and Office Standard Edition 2003 available in more languages. The company will offer Language Interface Packs that can be installed on top of the two products to provide localized language support. Microsoft said it hopes to double the number of supported languages, to about 80.

Short Takes

AFFILIATED COMPUTER SERVICES INC. in Dallas said it has signed a 10-year deal to manage some of the IT systems and business operations at General Electric Co.'s shared financial service center in Fort Myers, Fla. . . . **SAP AG** plans to start reselling the Crystal Enterprise reporting tools as part of a deal with Business Objects SA.

SEC Considers Rules For Trade Automation

Seeks feedback on straight-through processing, faster settlement cycles

BY LUCAS MEARIAN

THE U.S. Securities and Exchange Commission is weighing the idea of mandating that financial services firms shorten their stock-trade confirmation and settlement cycles and fully automate exchanges of settlement data.

The SEC on March 11 issued a letter seeking comments on a variety of proposals for improving the security and efficiency of the trade settlement system and helping companies do straight-through processing (STP) of trades with one another.

In a statement last week, John Panchery, managing director of systems and technology at the Securities Industry Association in New York, lauded the SEC's effort "to streamline the pipeline used for handling securities transactions."

However, SIA spokeswoman Margaret Draper acknowledged that it would be a challenge to get financial management firms to spend money on STP technology when a return on investment may not be as obvious for them as it is for the investment banks that sell stocks. "But we're working with the buy side," Draper said. "It'll be a more efficient process all around."

The SEC's proposals include creating a new rule requiring brokerages to complete the trade confirmation and affirmation process on the date a trade takes place, or T+0. In addition, the SEC said it's seeking feedback on reducing the settlement cycle from the current three days to one, or T+1. The commission originally said it might create new rules mandating the use of STP and T+1 two years ago [QuickLink 29950].

"This kind of thing is going to generate push-back. It's real simple: Brokers don't want to do industry projects," said TowerGroup analyst Robert Iati, referring to IT investments that are widespread and don't offer any differentiation.

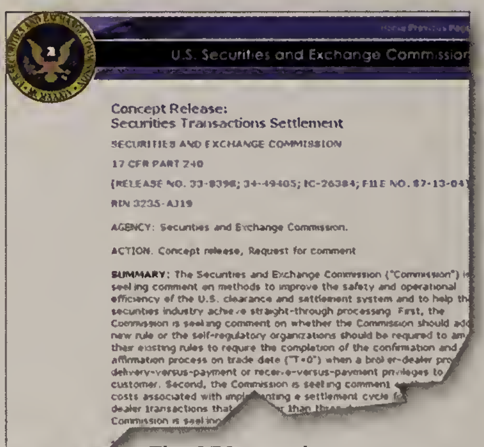
Needham, Mass.-based TowerGroup estimates that achieving T+1 would cost the financial services industry more than $8 billion. "Just when money becomes available, why throw it at something industrywide, boring and that doesn't create a competitive advantage?" Iati said.

Even the SIA isn't pushing hard for adoption of T+1 settlements. Two years ago, the trade group rescinded a mid-2005 deadline it had set for the industry to move to T+1 in favor of promoting STP, which involves creating interconnected networks that let data flow from brokers and dealers to the back-end systems of banks, brokerages and clearinghouses. Currently, many brokerages still use fax machines and phones to handle that process.

Boston-based Omgeo LLC offers a trade-matching service that acts as a central hub and manages the electronic handshakes between systems at different companies. Lee Cutrone, managing director of industry relations at Omgeo, said he sees the SEC's move as "a very positive thing" because it refocuses the industry's attention on STP.

"There were some folks who were saying, 'OK, there's no date, so let's back-burner this,' " said Cutrone. **45588**

MORE ONLINE
Get additional coverage of the financial services industry:
QuickLink q3670
www.computerworld.com


U.S. Securities and Exchange Commissio

Concept Release:
Securities Transactions Settlement

SECURITIES AND EXCHANGE COMMISSION

17 CFR PART 240

[RELEASE NO. 33-8398; 34-49405; IC-26384; FILE NO. S7-13-04]

RIN 3235-AJ19

AGENCY: Securities and Exchange Commission.

ACTION: Concept release; Request for comment

SUMMARY: The Securities and Exchange Commission ("Commission") i
seeking comment on methods to improve the safety and operational
efficiency of the U.S. clearance and settlement system and to help th
securities industry achieve straight-through processing. First, the
Commission is seeking comment on whether the Commission should ad
new rule or the self-regulatory organizations should be required to am
their existing rules to require the completion of the confirmation and
affirmation process on trade date ("T+0") when a broker-dealer pro
delivery-versus-payment or receive-versus-payment privileges to
customer. Second, the Commission is seeking comment
costs associated with impl nting a settlement cycle f
dealer transactions that than thre
Commission is seekin

The SEC is seeking comment on several IT-related proposals.

Cisco Expands Switch Line, Supports 10 Gigabit Ethernet

BY MATT HAMBLEN

Cisco Systems Inc. last week announced a series of additions to its Catalyst switch line, including devices with 10 Gigabit Ethernet capabilities.

For example, a new Catalyst 3750 edge switch with a 10 Gigabit Ethernet uplink port is due for release late this month at a starting price of $20,000. Cisco also introduced two 10 Gigabit Ethernet modules, one for use with copper cables in data centers at distances of up to 15 meters for clustering servers and other IT equipment. The other module supports multimode fiber installations covering distances of up to 300 meters, Cisco said. The two products are priced at $600 and $4,000, respectively.

McGill University in Montreal has been beta-testing 20 Catalyst 3750s with the 10 Gigabit Ethernet uplink capability for the past two months, said Quan Nguyen, associate director of systems engineering at the school. McGill is trying to expand the amount of available bandwidth between its music performance venues and recording studios, so student recording engineers can take live video and audio streams from the performance halls via IP and mix them, Nguyen said.

"We're doing high-end audio and video research," he said. "We keep pushing more bandwidth to the music department, but they keep asking for more." Nguyen noted that the school uses a total of about 700 Cisco switches and sees no need to consider alternative vendors.

High costs have been a major factor in slowing the adoption of 10 Gigabit Ethernet technology, said Zeus Kerravala, an analyst at The Yankee Group in Boston. But the situation is changing as prices fall, he said, adding that 10 Gigabit Ethernet now "is going into the general enterprise, not just academic settings."

Health Net Inc. recently deployed new network analysis software modules that Cisco also announced last week for its Catalyst 6500 switch line (see chart). HealthNet is using the software on six Catalyst 6500s to do remote troubleshooting and analysis of voice-over-IP services, said Jeff Jacobs, a senior network design engineer who works at the company's data center in Sacramento.

The network analysis software "has solved a lot of different requirements, since it didn't require new management tools or rack space or much of a learning curve," Jacobs said. **45591**

OTHER ANNOUNCEMENTS

CATALYST 6500: Upgraded supervisor engine, plus a 48-port Gigabit Ethernet module and software updates supporting content switching, SSL, IPsec VPNs and network analysis.

CATALYST 4500: 4510R chassis with 10 slots, plus a new Supervisor Engine V device.

Users Cite Promise, Perils of CRM Apps

Higher sales are among the potential benefits, but usage issues can be vexing

BY MARC L. SONGINI
BALTIMORE

Despite lingering skepticism about the effectiveness of CRM applications, some users last week said the software can provide payoffs such as higher sales, improved efficiency and increased customer satisfaction — if it's used in the right way.

That was the catch cited at Gartner Inc.'s Spring CRM Summit here by a half-dozen IT managers and other attendees whose companies are currently in varying stages of CRM rollouts.

Scot Struminger, vice president of IT for corporate headquarters systems at FedEx Corp., said one of the keys to success on an installation of Amdocs Ltd.'s ClarifyCRM call center applications was close cooperation between the package-delivery company's IT staff and business managers.

For example, prior to the CRM project, FedEx aggregated transactions with corporate customers at the overall account level. But Struminger said that when IT workers began talking to prospective end users about the new software, they realized that the company's definition of *customer* had to be changed. "You had to capture interaction at the individual level," he said.

Drop in Call Volume

FedEx went live with ClarifyCRM at its Memphis call center in 2001 and now has about 3,000 workers using the applications. By using the Amdocs software to push customers to the company's Web site, and thus resolve problems more quickly and reduce the need for follow-up phone calls, FedEx has cut its daily total number of incoming calls by 89,000 to about 600,000 — a 13% decrease.

But CRM software's ability to help users process calls more quickly or sell more products to customers aren't the only priorities that IT managers have to worry about, Struminger noted. "It's not all about the [call] handle time," he said. "The customer is hard to acquire, and you should treat them the way they want to be treated. The software is a tool, but CRM is a whole culture."

Another way of making such a system work is to require that the workers using the software be accountable for making it work, said Cyndie Beckwith, vice president of customer experience at the California State Automobile Association in San Francisco. The AAA affiliate uses campaign management and analytical CRM applications from E.piphany Inc. Beckwith said the tools can consolidate customer information from various databases and deliver the information in a single screen to marketing workers and data analysts.

When the association went live with the software, Beckwith said, it changed the performance goals of the end users and told them to use the customer information stored in an E.piphany data mart in an effort to increase the success rates of marketing campaigns.

David Zink, CIO at Blue Cross & Blue Shield of Rhode Island, advised companies installing CRM applications to try to keep the software as "vanilla" as possible. "Don't change the system if you can help it," Zink said, adding that IT managers also should make sure they have commitments of support from top corporate executives. He reported to the health care provider's chief operating officer during its CRM project.

The Providence-based company in December went live with a call center application from Pegasystems Inc. that replaced a set of homegrown green-screen applications. The software is meant to help Rhode Island's 680,000 Blue Cross & Blue Shield members check on the status of claims or the availability of fitness programs, Zink said. 45580

> **The software is a tool, but CRM is a whole culture.**
>
> **SCOT STRUMINGER,** VICE PRESIDENT OF IT FOR CORPORATE HEADQUARTERS SYSTEMS, FEDEX

IT, Business Units Look for Ways To Better Align Their Operations

IT execs cite poor communication as a barrier, survey results show

BY THOMAS HOFFMAN

Business executives often are quick to point out the shortcomings of IT managers, including their inability to talk about technology in business terms. But the lack of alignment between IT and business units is a two-way street, according to survey results that were released last week.

The survey, done by New York-based Deloitte Consulting and IDG Research Services in Framingham, Mass., showed that many IT managers think business leaders themselves need to do a better job of communicating corporate strategies and goals to their technology counterparts.

Nearly two-thirds of the 200 IT executives polled said that ineffective communication between business and IT managers represents a significant or moderate challenge within their companies (see chart). About half of the respondents also cited a lack of funding for improving IT/business alignment as a big barrier.

Steve Scott, vice president of IT at Vision Service Plan in Rancho Cordova, Calif., said the key to establishing effective communications "is to have people who own that process and keep everyone honest about their responsibility to keep both the IT staff and business units well informed. That is the only way we'll get the necessary level of engagement to be successful."

Some companies are trying to bridge the alignment gap by tinkering with their IT governance models. For example, Philadelphia-based Lincoln National Corp. has taken several steps to tighten up its governance procedures over the past 12 months, said Jason Glazier, chief technology and e-commerce officer at the $4.6 billion provider of life insurance, retirement plans and wealth management services.

More Oversight

Project managers used to update executives on big technology investments only upon "special request," Glazier said.

Now, the workers who are leading IT projects must report every three months to Lincoln's seven-person IT executive steering committee on how budgets and delivery schedules compare with the original plans.

In addition, Glazier said most of the business units at the company, which operates under the name Lincoln Financial Group, have set up more rigorous project approval and prioritization processes for deciding which IT initiatives to fund.

Vision Service Plan also has put a lot of effort into improving the alignment between IT and its business units, Scott said. For instance, prior to launching an enterprise architecture effort in early 2003, the IT department at the eye care benefits provider conducted extensive interviews with business executives and other key end users, according to Scott.

In some cases, the company's business units themselves now provide the project managers for IT initiatives, he added. "If we are not at the 'extremely well-aligned' level, we are fast approaching that mark," Scott said.

Nonetheless, incorporating more focused IT governance techniques can only go so far toward improving alignment within some companies, said John Parkinson, chief technologist for the Americas at consulting firm Cap Gemini Ernst & Young U.S. LLC.

"It all depends on how the business views IT," Parkinson said. At some companies, business leaders recognize the importance of investing in IT to achieve corporate goals, he noted. But, he said, "at the other end of the spectrum, business views IT as a necessary evil." 45598

ALIGNMENT GAP

65%

Said "ineffective communication of business strategy and goals between business management and IT management" is a significant or moderate challenge

10%

Reported that their companies have been "extremely successful" at aligning IT plans with corporate strategies

BASE: 200 IT executives who were surveyed last October

SOURCE: DELOITTE CONSULTING, NEW YORK, AND IDG RESEARCH SERVICES, FRAMINGHAM, MASS.

Diverse Skills Can Help IT Workers Avoid Offshore Ax

ITAA workshop stresses advantages of having a multidisciplinary background

BY PATRICK THIBODEAU
ARLINGTON, VA.

TO THRIVE in today's workforce, IT professionals will need a mix of industry-specific skills and a multidisciplinary background as more programming and coding work is moved offshore.

That was the overriding message at a workforce forum last week coordinated by the Information Technology Association of America. The workshop included several large IT vendors and universities with technology programs.

One of the things Microsoft Corp. looks for in prospective employees is people "who can think about the silos in which they have been educated," said Marland Buckner, public policy manager at the vendor. One clue that someone may have this ability is an advanced degree in computer science as well as English, Buckner said.

"That is someone with skill sets significantly different than the traditional computer-science grad," he said.

At PeopleSoft Inc., the 12,000-employee workforce has evolved to focus on industry-specific approaches that are also localized for international users, said Steve Eberly, a vice president in the company's public services solution consultants division. "The workforce has matured to the point where they have become specialist rather than generalist," he said. That means workers need to know how to add business value in certain areas in addition to having technical know-how.

The kind of work that is likely to be moved offshore is the actual "construction phase" of a project, where requirements can be spelled out in detail, said Eberly.

Among the kinds of IT workers that defense and government IT contractor Northrop Grumman Corp. needs are those who can handle high-end IT projects, such as enterprise and network architects, program managers and ERP specialists, said Marilyn Stewart, the company's senior director of federal enterprise solutions.

Because many of Northrop Grumman's workers require security clearances, moving work offshore isn't an option. The clearance requirement slows down hiring, which has prompted the company to emphasize retention programs.

> Because many of Northrop Grumman's workers require **security clearances**, moving work offshore isn't an option. The clearance requirement slows down hiring, which has prompted the company to emphasize **retention programs.**

Education programs are also broadening. Many universities and colleges offer IT programs that bring together a range of disciplines and technical skills to produce leaders who can align technology with business needs. Such programs are now trying to gain recognition under a formally accredited program; about 70 schools are involved in the effort.

Kurt Linberg, dean of Capella University's School of Technology in Minneapolis, said accreditation is necessary to ensure the quality of IT programs at the undergraduate level. "IT degree programs are popping up all over the country, and there is no ability to ensure quality," he said.

Accreditation is important to corporate hiring managers, who sometimes won't consider a job candidate's academic records unless they come from an accredited program, said Linberg.

But Trentwell White, corporate liaison at Chicago-based National-Louis University, said that while accreditation may resound with human resources managers, an IT hiring manager will want to know about a job candidate's skills and expertise.

"So I'm not sure that accreditation — which the education community keeps trying to build up because it brings them students — is really the key," said White. **45599**

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Continued from page 1

HP e3000

stop support is two and half years away, it has become an urgent issue for some users. Ken Sletten, who manages e3000 systems at a federal government facility in Washington state that he asked not be further identified, said transferring knowledge about MPE to a third party won't be easy. "It's a pretty complex process, and as time goes on, the number of people within HP who know how to do this is going to [decline more and more]," he said.

Moreover, if users know that a third party will take over source-code support, it may allow them to slow their migrations from e3000 to other systems. "The importance of having the decision this year is so that users can make future plans," said Paul Edwards, an e3000 consultant in Carrollton, Texas.

An online survey released last week by Interex, the Sunnyvale, Calif.-based HP user group, backs the demand for quick action by HP. The top issue cited by the 223 respondents was for a decision from HP by the second half of this year on licensing MPE source code to one or more third parties.

HP doesn't see the need to make a decision this year, said David Wilde, HP's e3000 business manager, who stressed that the company must act in "the best overall interest" of the e3000 user base.

Wilde said a decision to license the source code might prompt some customers to replace their transition plans with an alternative that may not meet their needs, simultaneously hurting HP business partners that provide migration services. "We don't help anybody if we do damage to that overall value chain," he said.

> **There is clearly a business case for continuing MPE's life beyond 2006.**
>
> **DONNA GARVERICK,**
> LONGS DRUG STORES CORP.

But Wilde said HP is also sensitive to the needs of customers who will be running e3000 systems beyond 2006. HP expects "to make appropriate adjustments in our plans," he said.

He said the company has been receptive to customers' needs, citing the recent decision to extend support for MPE Version 6.5, which had been due to end this year, to 2006. Versions 7 and 7.5 are also being supported through 2006.

The issue is becoming increasingly heated. Sletten raised complaints about HP's actions in e-mail he sent to a mailing list, attaching correspondence between HP and OpenMPE. HP subsequently pursued an effort to get OpenMPE members to sign nondisclosure agreements, raising concerns that public discussion of the matter could be curtailed. However, Wilde said members won't be blocked from voicing their opinions about user needs.

Domino Effect

Longs Drug Stores, meanwhile, has been migrating off the e3000 as part of a multimillion-dollar project, but Garverick said she believes the e3000 will be running mission-critical systems beyond 2006.

Being able to update the source code will be important, Garverick said. For instance, the e3000 uses FTP processes, but if the FTP process was changed on an Intel-based system, the e3000 code would also have to be adjusted.

Interex's customer advocate, Debbie Lawson, said the e3000 user base may have been as large as 40,000 at one time, and previous surveys indicate that about 75% plan to migrate off the system.

In earlier years, as many as 1,200 responded to HP e3000 surveys, said Lawson. But she believes that the current response from 223 users is "a good representation of what this vocal minority wants."

HP has developed programs to move users to its HP 9000 system running its HP-UX version of Unix. Lawson said her view is that the reason HP is being noncommittal about third-party source-code licensing is that it "doesn't want the migration to be slowed down. They want to get people on other platforms as soon as possible." **45595**

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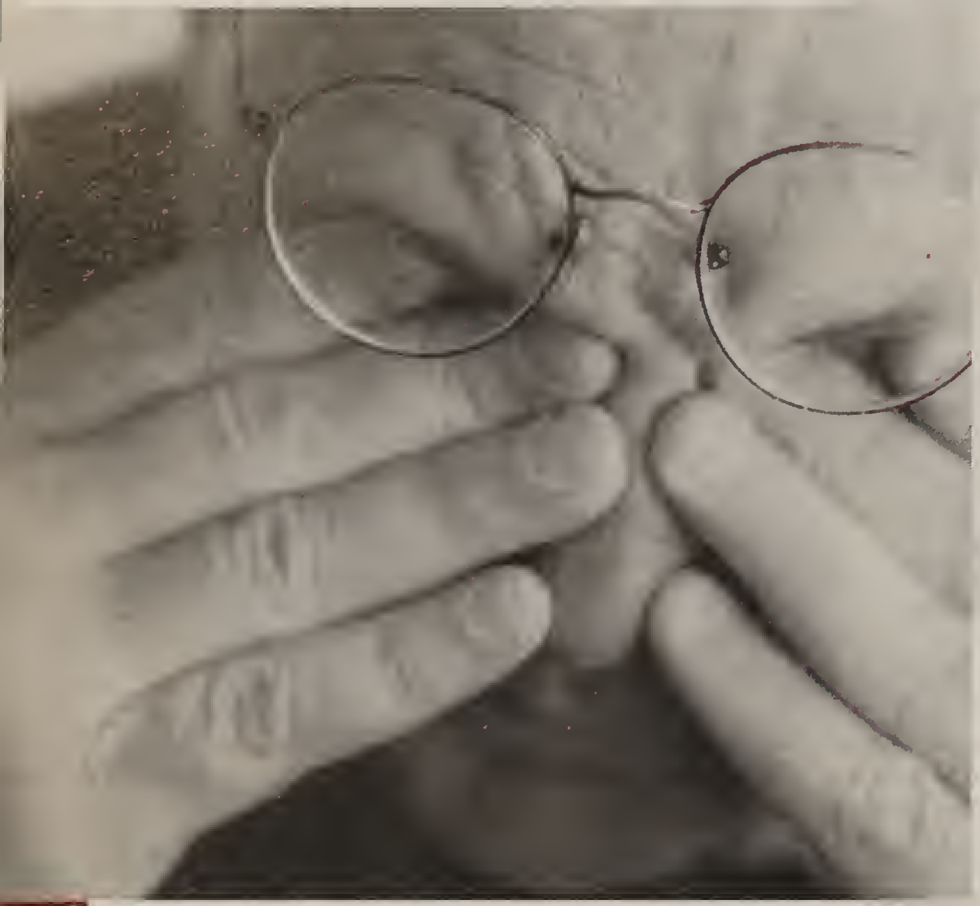

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Sears Taps CSC for $2B Outsourcing Deal

BY TODD R. WEISS

Following through on plans disclosed by its CIO in January, Sears, Roebuck and Co. is negotiating with Computer Sciences Corp. on a partial IT outsourcing deal that's expected to be worth about $2 billion over the next 10 years.

The deal would give CSC responsibility for managing much of the IT infrastructure at Sears and would affect about 260 of the retailer's 1,160 IT workers, although Sears this month said it expects CSC to hire "substantially all" of the affected staffers.

A final agreement should be signed during the second quarter, according to Sears. The infrastructure technologies that are due to be outsourced to CSC include servers, desktop PCs and other client devices, voice and data networks, and the systems that support Sears-related Web sites. CSC would also handle help desk operations as well as IT asset and risk management, said Sears spokesman Chris Brathwaite.

In a statement, Sears CIO Gary Kelly said the services provided by El Segundo, Calif.-based CSC should "heighten the stability and reliability of Sears' technical infrastructure" and reduce the cost of future IT improvements. He added that CSC "will also provide fair and equitable treatment" for the affected IT workers.

At a retail IT conference two months ago, Kelly told *Computerworld* that he planned to outsource some of Sears' IT operations to cut costs and improve profit margins [QuickLink 44112]. In addition to CSC, he named IBM Global Services, Hewlett-Packard Co., Electronic Data Systems Corp. and Affiliated Computer Services Inc. as the vendors vying for the deal.

The company's mainframes and core retail systems won't be included in the outsourcing deal, nor will the separate IT operations of catalog retailer Lands' End Inc., which Sears acquired in 2002. Brathwaite said Sears will continue to manage the retail systems internally. The mainframes are already supported by IBM under an existing outsourcing contract, he added.

Sears decided to do more outsourcing after a review of its IT infrastructure showed that some pieces need to be improved, Brathwaite said. Working with CSC on the improvements should yield savings that will let Sears focus more resources on its retail systems, he said. ◐ 45543

MORE NEWS

Procter & Gamble expands an outsourcing deal with Hewlett-Packard to include its accounts payable operations:

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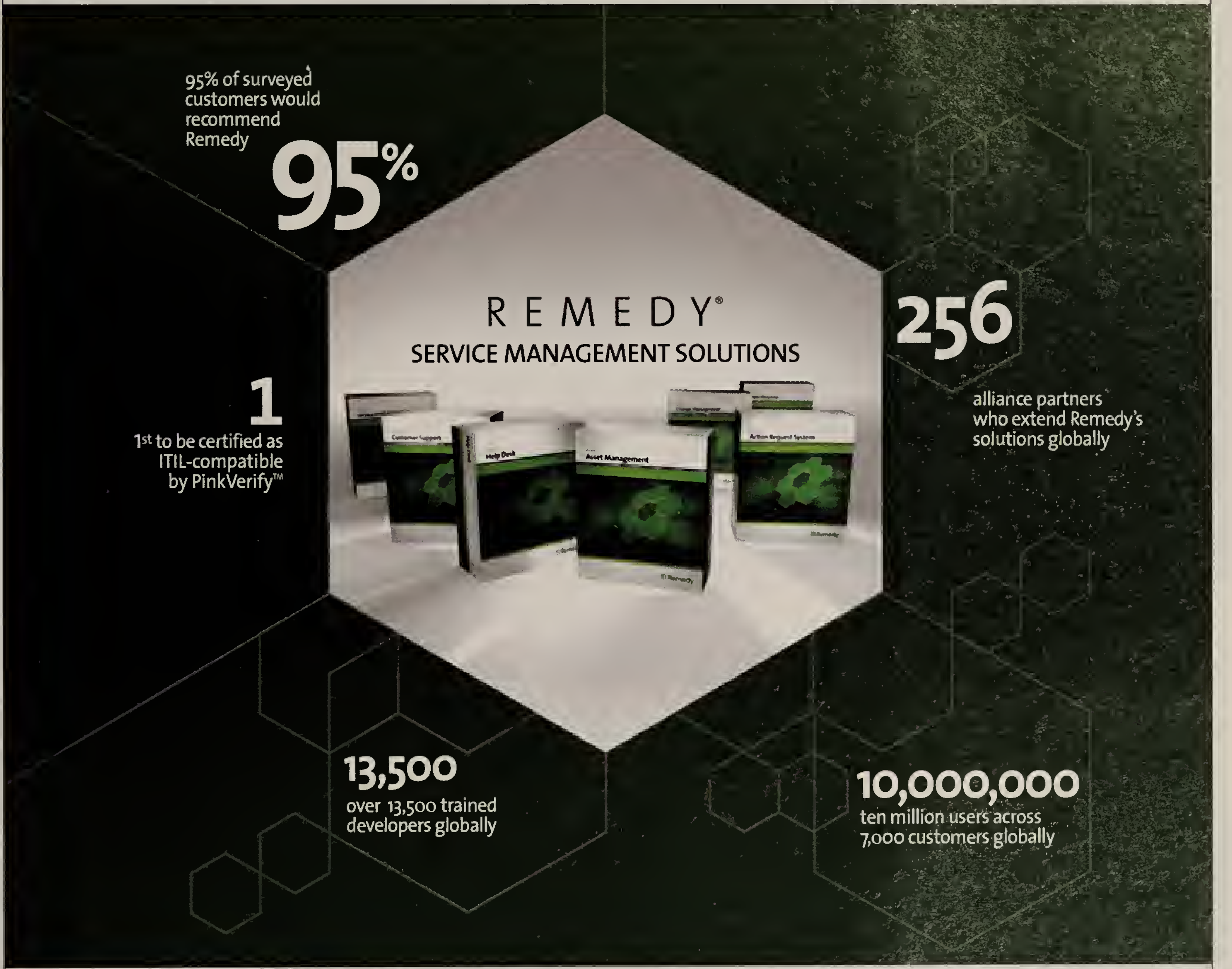
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MARYFRAN JOHNSON

Privacy Hostages

I'VE RECENTLY GOTTEN HOOKED on a BBC America TV program called *What Not to Wear*, in which two witty, quintessentially British "style journalists" single out some walking fashion disaster for a wardrobe update and makeover. In the first scene, the show's hosts merrily pounce on their startled sartorial slob, presenting her with a big check for an upcoming shopping spree and explaining how friends or relations helped arrange the whole ambush. Lots of shrieking and laughter ensues.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

And then the hosts drop the big bomb: Hidden cameras have been tracking the hapless victim in her most unsuitable and unflattering outfits, for all the world to see. As that realization sinks in, the makeover subject suddenly stops laughing. Invariably, the same horrified question comes next: "You've been secretly filming me?"

That invasion-of-privacy moment passes quickly, and the show marches delightfully onward. But I wonder how long it will be before such candid-camera entertainment becomes flatly illegal, plowed under the mountain of new privacy rules and regulations enclosing us and all the data generated about us (streaming video of our wardrobes included). I realize that data privacy is vying for a place alongside motherhood and apple pie in the public sentiment these days, but I wonder if we aren't slipping over into paranoia as we try to build a fortress of legal and technical protections around every bit of personal information that gets loose in the world.

Not that there's much choice anymore. The sheer enormity of what IT departments are facing at this intersection of mandated regulatory compliance, customer data protection and risk management was starkly evident in our special report on privacy last week ["Compliance Headaches," QuickLink 45078]. Big companies can expect to spend millions on privacy compliance programs and activities in the coming years, just to keep pace with existing federal laws such as HIPAA and Sarbanes-Oxley. Yet legal precedents are few, implementation procedures are largely experimental, and vaguely written guidelines vary from state to state. The infamous California Senate Bill 1386, which requires notification of any unauthorized disclosures of personal information, calls for customer data to be encrypted but doesn't specify to what level.

"Over the past two years, we've had over 1,000 new privacy laws that have affected us," said Joel Tietz, chief privacy officer at AXA Financial Services in New York, who was quoted in our "Privacy Potholes" story [QuickLink 45101]. Like many companies, AXA is using a CRM system to dig into its customer data for useful trends and potential revenue opportunities. But unlike many companies, the financial firm is being aggressively attentive to mapping customer privacy preferences against a database that consolidates multiple applications and production systems.

Monitoring privacy compliance inside your own business is no longer enough, however. Your partners, supply chain vendors and any other suppliers that access your data — particularly those offshore and operating under looser legal strictures — are part of the risk that senior IT managers now must protect against.

So prepare to be held hostage to privacy compliance. Spending in this realm will gobble up increasingly bigger portions of IT corporate budgets in the years to come. Larger companies will have to set up privacy compliance offices, which will run up additional bills for data protection staffers, expert consultants and specialized training.

The only effective strategy the experts all agree upon is this: Make sure you're meeting the maximum requirements of the strictest privacy laws affecting your industry.

If you don't, you'd better update your own wardrobe. Your next appearance might be on Court TV.

45550

"CONGRATULATE ME. WE'VE CRAFTED A PRIVACY POLICY THAT MEETS EVERY SINGLE REGULATION OUT THERE."

PIMM FOX

Storage Tools You Can Use

EVERYONE TAKES their storage requirements seriously. Storage management deserves the same level of attention.

As your storage capacity increases and becomes more varied, it's crucial to have tools that can get you real-time information about your network-attached storage, storage-area networks and direct-attached storage operations.

At Owatonna, Minn.-based Federated Mutual Insurance Co., WAN/LAN administrator Mark Mielke has 3,000 employees pounding away at his storage systems. He has a typically atypical enterprise setup: Xiotech Corp. Magnitude storage arrays, hard drives for servers, and cluster-type servers for file retention, including customer records and applications. In all, depending on how he's got things configured, there's anywhere from 2.5TB to 5TB of storage that has to be accounted for, allocated and managed.

PIMM FOX is a freelance writer in Santa Barbara, Calif. Contact him at pimmfox@pacbell.net.

"We didn't have any good tools to look into what we were doing with storage," says Mielke. "We couldn't see into the future."

And that's the story with storage, isn't it? Today handles itself, but you've always got to be one or two steps ahead of your users.

Federated Mutual needed something multifunctional to handle its SAN switches, its main storage units, its Windows NT client pieces and the Novell side. Those multiple platforms and vendors led the company to choose Dallas-based Tek-Tools Inc. and its Storage Profiler software.

Mielke says installation was easy, and the tools provide good analysis, with the power to drill down into each type of data that Federated Mutual stores.

"We have Storage Profiler giving us feedback on servers," says Mielke, "and we're ramping up on all our SAN equipment and our switches." He's using SNMP to set up alert criteria on hosts so that at 80% of capacity, for ex-

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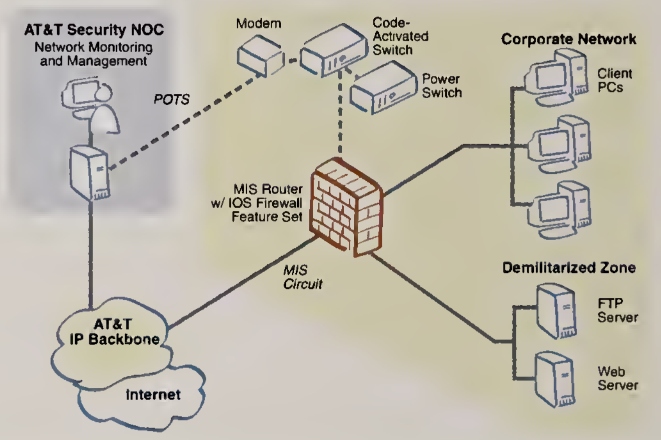

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ample, Mielke's team will be signaled. He can also monitor events in Windows NT, look at memory space on NetWare and get a real view of each storage point.

The tool also makes it possible to normalize data into common tables for enterprisewide reports so there's less guesswork about storage needs. Building custom reporting tools is also straightforward, using either Java or templates built into the Profiler suite.

The automotive unit of Siemens AG used similar storage management techniques to do file analysis on its network-attached storage boxes, and it uses the same reporting tools to check backup and network performance.

This new area of storage resource management should help cut operating expenses and help users get the most from their storage investments.

Big companies like Siemens can start by digesting small bites of their storage strategies and looking at the management problem with an eye toward reclaiming some of the storage space that's wasted because of poor visibility. **45478**

THORNTON A. MAY

Tricks of The Futuring Trade

RESEARCH from UCLA's Managing the Information Resource Program has brought to the surface three high-value techniques for planning for the future that are inexpensive to put into operation.

Déjà viewing. This technique, which is frequently used to craft insight-producing, behavior-changing scenarios of what lies ahead and what actions should be taken, involves looking intensely at the current period and asking, "Has anyone experienced anything like this before?"

In a workshop conducted for the IT Leadership Academy at Florida Community College at Jacksonville, I asked that question about the situation that technology leaders find themselves in today. The assembled decision-makers kicked around various situations seeking analogies and came up with the following:

- The trip to hell described in Dante's *Inferno*.
- The Clinton White House following the revelations about Monica Lewinsky. ("One mistake, and everybody hates us.")
- President Bush and nation-building in Iraq. ("Long, hard slog. No real idea how much it's going to cost or when it's going to end.")

Thornton A. May is a longtime industry observer, management consultant and commentator. Contact him at **thorntonamay@aol.com**.

Two déjà views had the most resonance for today's IT managers.

The first was the post-Sputnik era. The launch of the Russian satellite on Oct. 4, 1957, shook an almost universally held belief that the U.S. would always be significantly ahead of the Soviet Union in all aspects of science and technology. Today, the widely adopted practice of outsourcing higher-end IT work has similarly shaken the belief that the U.S. will always lead the world in computer technology.

The second was the first big management-consulting fad, "scientific management," which cropped up in the early 20th century. Frederick Taylor synthesized several existing ideas to create a process to assist management in reducing waste through the careful study of work and the adoption of standardized work practices. Today, the processes of IT are being closely studied with an eye toward simplification, standardization and significant improvement in productivity.

Bringing the future to the present. This concept involves projecting a future point in time and painting a picture of what you want to happen. Examples: During a joint session of Congress on May 25, 1961, President Kennedy looked a decade ahead and saw an American on the moon. And following the Jan. 17, 1994, Northridge, Calif., earthquake, a team of dedicated construction professionals foresaw the Santa Monica Freeway being reopened "safely to the flow of traffic in 66 days," even though some experts said it would take two years.

IT professionals who bring the future to the present envision a bold scenario that people don't believe they can make happen, then they structure their activities so that they deliver capabilities that will render the competition irrelevant, on time and within budget.

Experience hitchhiking. This technique is a personified version of déjà viewing. With déjà viewing, you look for broad-based analogs. For example, you ask yourself how President Eisenhower responded to the challenge of Sputnik and whether there are lessons in that for crafting your response to outsourcing. With experience hitchhiking, you seek out individuals and companies whose experiences most closely resemble a situation you are about to enter or are thinking of entering. Then you ring up these "experiencers" and ask if you can hitchhike, or ride their learning curves.

By combining these three techniques, you will ride a limo to your future, not someone else's bus to a destination you may not enjoy. **45464**

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READERS' LETTERS

The Practice of 'Intelligent Disobedience'

I WAS QUOTED in last month's Think Tank [QuickLink 44159] saying, "The role of the IT organization is to have the right solution to the business problem, not to decide what really needs to be done." This does not in any manner convey that the CIO is not supposed to actively contribute to the creation and implementation of company strategy, as suggested by Michael Hugos [QuickLink 44587] and Paul Glen [QuickLink 44559] in Readers' Letters of March 1. Developing the right solution means being involved in working intimately with business executives. It does not mean deciding what to implement. That is a decision for the business side.

In a survey of 78 participants conducted during a two-day project management boot camp at Comdex 2003, 49% said that their organization's strategy wasn't well defined or broadly communicated, 50% said that their projects weren't aligned with the organization's strategy, and 57% said that the value of their projects to the business wasn't well defined. Why do CIOs continue to put resources into these projects? I certainly hope it's not in the name of alignment and involvement with the business community. To our client CIOs, we have always advised practicing "intelligent disobedience," an action that's designed to keep both the CIO and, more importantly, the corporation out of harm's way. And we remind our business executive clients of the time-tested warning by Warren Buffett: "Never ask the barber if you need a haircut."

Gopal K. Kapur
President, Center for Project Management, San Ramon, Calif.

Evolving Linux

THE COMMENTS in the article "Users Wary About Open-Source Alternatives to Windows OS" [QuickLink 45042] are all valid, but if the day ever comes when robust, low-cost ERP solutions arrive on Linux, then the competition will begin. That's what small businesses build their computer networks around, and the rest just follows, regardless of end-user complaining. Microsoft conquered small business with turnkey SQL Server-based ERP products developed by third-party partners such as Great Plains. Ironically, this was a playing field created and then lost by Novell. As long as Linux builds in enough point-and-click administration functionality to support the do-it-yourselfers, then the support issues aren't any greater than they were with Windows just a few short years ago.

Bill Pratt
Vice president of operations, Kinamed Inc., Camarillo, Calif.

Stopping Spam

THE FIRST ITEM in the "Seven Steps to Take Now" box [QuickLink 44797] accompanying the "Winning Ways to Stop Spam" feature in the March 1 issue (which says to use a GIF image file instead of publishing e-mail addresses on the Web) can cause problems for users who have an inability to view images, especially those who use speech synthesis tools to read Web pages. And harvesters tend to look not only at the viewable content of a Web page but also at the embedded items, particularly mailto: links. A different solution that seems to work for many companies is Web-based input forms that don't use e-mail facilities. The user doesn't get your e-mail address until he applies.

Step 4 (use ISPs that have zero tolerance for spammers) should also mention a contract escape clause, because even spam-supporting ISPs have policies against spammers. If they don't enforce their zero-tolerance policies, then they are spam supporters and don't deserve your money.

Larry Williams
Information security administrator, Portland, Ore.

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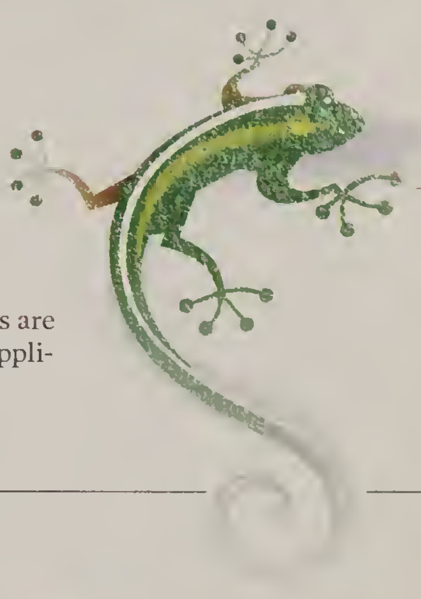


EMERGING TECHNOLOGIES

SANs Come Up to Speed

Two new high-speed Fibre Channel standards could provide a migration path as SANs ascend to 10Gbit/sec. speeds. **Page 30**

Q&A

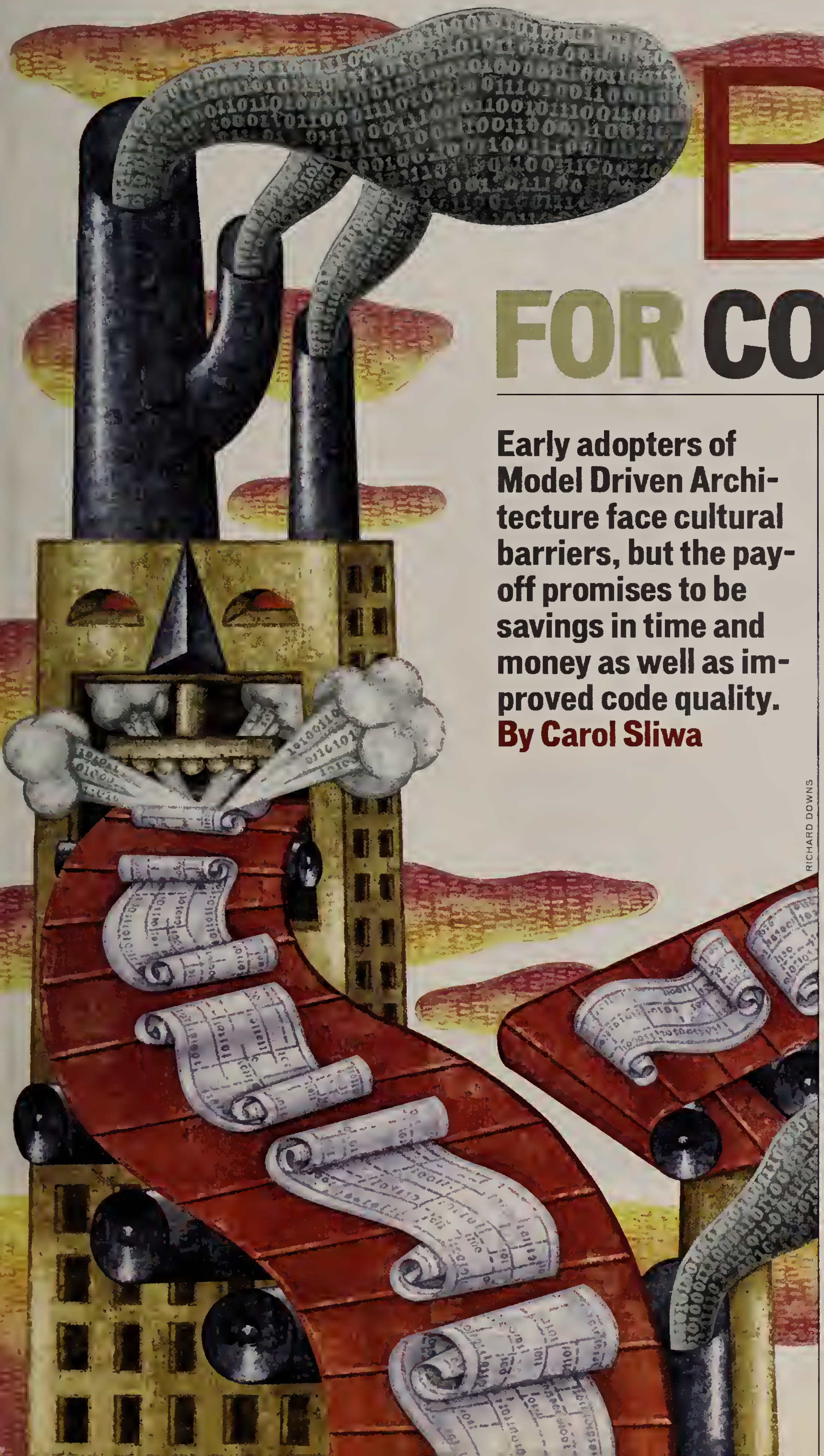
Innovation for Hire

Satyam Cherukuri, CEO of Sarnoff Corp., discusses the meaning of innovation and how his company has turned it into a methodology. **Page 32**

FUTURE WATCH

Chameleon Computing

Reconfigurable computing architectures are finally beginning to emerge as mobile applications begin testing traditional microprocessor capabilities. **Page 34**



RICHARD DOWNS

Blueprint FOR CODE AUTOMATION

Early adopters of Model Driven Architecture face cultural barriers, but the payoff promises to be savings in time and money as well as improved code quality.

By Carol Sliwa

WISCONSIN is replacing its collection of disparate mainframe- and client/server-based unemployment insurance benefits applications with a Web system. But instead of starting the project by writing pages of specifications to describe the business processes, the team drew pictures.

The state's Department of Workforce Development hired a trainer to teach its Cobol programmers and business users the Unified Modeling Language, and the team mapped out UML diagrams on computers to document the requirements for the new applications.

Wisconsin is part of a small but committed group of organizations that is turning to a set of standards collectively known as Model Driven Architecture (MDA) that's being developed by Needham, Mass.-based Object Management Group Inc. They use UML and code-generating tools to build applications, and if all goes well, they use programming languages only sparingly to fill in the business logic. OMG CEO Richard Soley says he knows of two companies that are generating 100% of their code through the MDA approach.

But automatic code generation is only one of the benefits that early adopters are finding. They say they're also reducing development time and costs, improving code quality, promoting code reuse and doing a better job of meeting application requirements.

Lee Carter, a project director at the Wisconsin Workforce Development Department, says it's helpful that business users and IT staffers can now speak the same language when they work on requirements. "It allows us to really focus on our business needs and not have to think about all the underlying technology until it's time to think about the technology," he says.

To map out requirements, developers and business analysts use stick figures and lines to illustrate the various use-case scenarios, such as how an incomplete application is processed or how a rejected applicant's appeal is handled. They replace the stick figures with boxes to show how the computer systems are connected. Once a series of activity, sequence, collaboration and other diagrams to design and document the new applications is ready, a tool transforms the models into the bulk of the application code, Carter says.

He says the diagrams documenting the applications can be retrieved at any time, even years down the road, because they're captured electronically with standards-based tools from IBM's Rational Software division. "Diagrams make so much more sense than writing pages and pages of narrative that just get stuffed into a 3-inch binder that nobody ever looks at again," he says. "We can trace from business requirements to code, or code back to business requirements."

Continued on page 28

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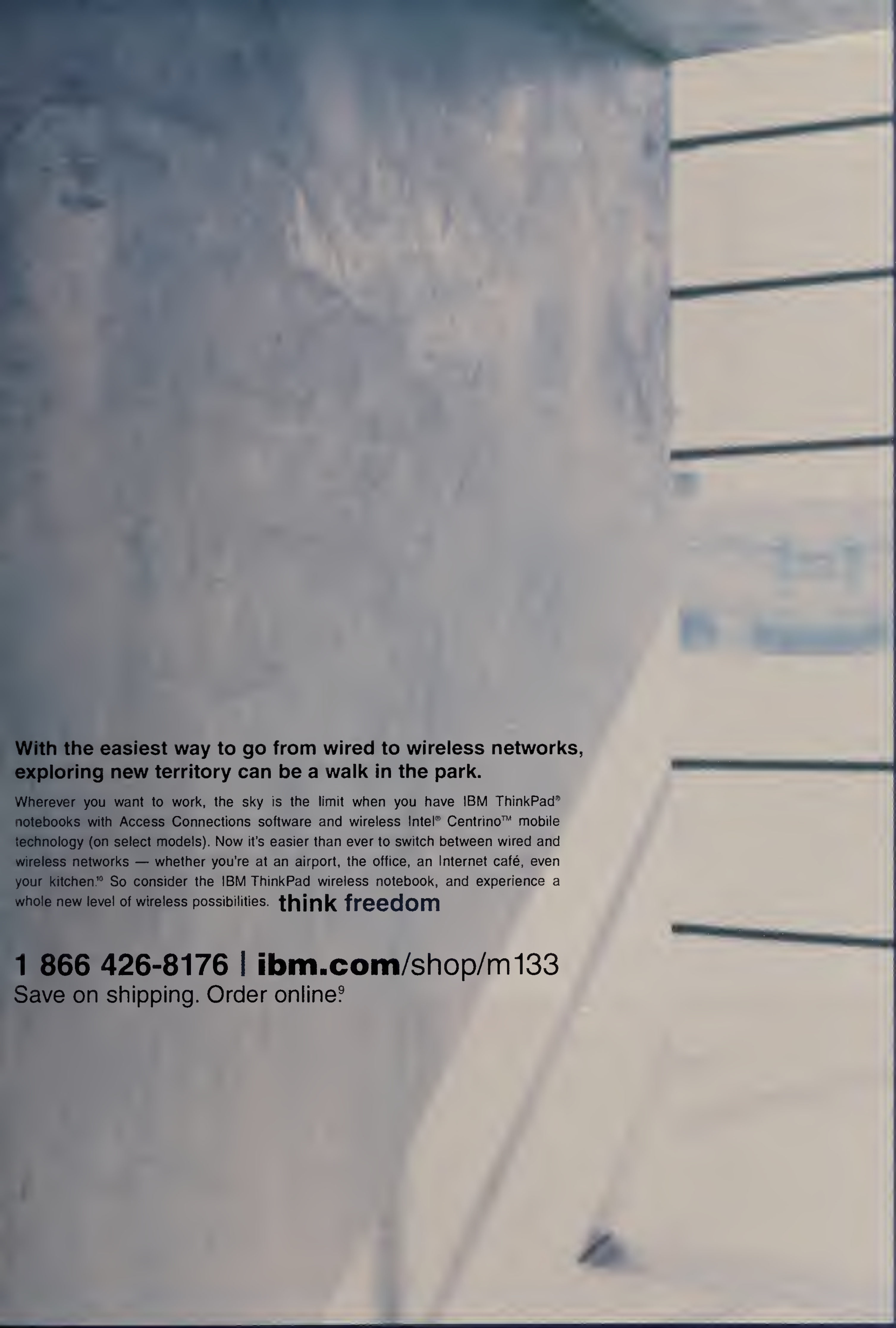

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Continued from page 25

To ease the transition to MDA, the project team brought in a qualified service provider, St. Paul, Minn.-based Adaptive Team Collaboration Inc., from the OMG's MDA FastStart program. Chris Armstrong, chief technology officer at ATC, has alternately served as mentor, trainer, counselor, psychiatrist and, most recently, process auditor, Carter says.

Another critical decision was selecting Dublin-based Curam Software's J2EE-based framework for building applications specific to the government social-services sector. The business requirements that the Wisconsin team specified through UML and defined through a platform-independent model (PIM) effectively integrate into the Curam software, Carter says. Systems integrator Tier Technologies Inc. also helped with the work.

Carter says that so far, the project is exceeding expectations. The team completed project requirements 60 days ahead of schedule. The first production release of the application is due in November, with other pieces to follow during the next two years. That's a shorter time frame than for similar projects states are undertaking using traditional approaches, Carter says.

PFPC Inc. in Wilmington, Del., a provider of IT outsourcing services and applications for the investment management industry, says customer projects that previously took six months to complete are taking four using MDA.

Michael Harte, the company's CIO, says the MDA approach is instilling discipline in his staff, leading to greater accuracy. Because the process forces more work to be produced upfront, serious design flaws can be discovered earlier than they could in the past.

Ian Maung, a senior architect at PFPC, notes that the MDA approach helps developers who work in different geographic locations to communicate better because they're able to understand the interfaces their colleagues expect.

Maung says that in the future, MDA might enable easier switches between runtime platforms, since the business and application logic is defined independently of the platform, and the PIM could simply be revised to generate a new platform-specific model. He hopes action semantics in UML 2.0 might pave the way for 100% code generation to standards-based platforms such as J2EE, and MDA ultimately may enable customized code generation.

Although the UML/MDA approach is gaining increasingly wider adoption by application architects, UML usage includes no more than 15% of developers, according to several analysts' estimates. Critics say its complexity can be daunting, and the cultural change for IT shops accustomed to pounding out code can be difficult to negotiate.

Building an Application Using **MDA**

1. **User develops a platform-independent model to represent desired business functionality and behavior – but not technology details.**
2. **An MDA-compliant tool applies standard mapping to generate a platform-specific model, for middleware based on J2EE or XML/SOAP, from PIM.**
3. **MDA tool generates all or most of implementation code for deployment technology.**

Analyst Carl Zetie at Forrester Research Inc. says few development teams have the patience to go deep into a project and not have a line of code to show for it. "With conventional IT shops, there's always the urge to code, and that to me is the single biggest barrier to any kind of modeling," he says.

Thomas Murphy, an analyst at Meta Group Inc., says many developers are skeptical based on past experiences with 4GL tools that produced code that was hard to maintain. He predicts that the use of model-driven and declarative approaches to development will increase — but not necessarily with the UML/MDA approach, which faces many challenges.

Early adopters are aware of many of them. For example, Maung says tools that claim to fully support standards often don't. And Per Gyllstrom, chief architect at PFPC, notes that some developers fear they may be displaced if an entire application can be generated through models and tools. It's important, he says, to start with small projects to convince skeptics of MDA's merits.

Although one of the benefits of MDA is code reuse, developers can be reluctant to trust a colleague's code or code that has been generated by a tool.

Fireman's Fund Insurance Co. in Novato, Calif., encountered such resistance while undertaking a major project to overhaul its claims system, which went into production in 2000. A seven-person team skilled in object-oriented development used a set of UML class models from IBM called the Insurance Application Architecture (IAA) to generate code into an Enterprise JavaBeans-based framework for persistence, messaging, events and object distribution.

Rational Rose scripts produced over 80% of the architectural code, and Fireman's Fund later switched to a code-generation tool from Montreal-based Codagen Technologies Corp. Within weeks, Codagen's rules engine and reusable templates eliminated the need for Rose scripts to do the transformation from model to code.

But the effort stalled as priorities shifted, and tension mounted between the core architecture team and the developers who had to hand-code the business logic, says Bill Nadal, an enterprise architect at Fireman's Fund.

The enterprise architecture team picked up the torch again in 2002, when it designed a blueprint for a reusable component stack with the aid of Peter Herzum, an expert in component-oriented software manufacturing. The team's goal was a "software factory" approach to development, in which components would be reused and snapped together like Legos to build applications.

A proof of concept done with Herzum Software LLC and Codagen targeted IBM's MQSeries Financial Edition, which used the IAA class models and Rose scripts to generate services and XML-based messages, Nadal says. The team demonstrated that, using the MDA approach, code could be automatically generated for persistence classes, service interfaces and XML messages.

Enterprise architects at Fireman's Fund are currently using their component blueprints to build core foundation models and services for security, context management and metadata management. In the future, they plan to focus on business-level components.

"Everyone thinks an enterprisewide approach takes longer and is more expensive," says Nadal. "It actually means you may build a higher-quality component once instead of many times across individual projects. MDA is an important step in achieving that goal." **45278**

A Different Model for **MICROSOFT**

One prominent tools vendor that has no plans to build tools to support UML and MDA is **Microsoft Corp.**

Prashant Sridharan, a lead product manager in Microsoft's tools group, says the company is fully behind the generic idea of model-driven development. But Microsoft believes there's a need for models closely tied to the operating system.

Sridharan says the UML/MDA camp promotes the notion "that you can model once and write your code on a number of platforms," but that's not effective in practice. Microsoft is, therefore, working on a modeling engine and modeling framework to allow users to describe service-oriented applications in a Windows-centric environment. He says he expects partners to deliver UML tools on top of it.

Whitehorse, the code name for the service-oriented design tool, is due in the first half of 2005, with Microsoft's Visual Studio 2005 development environment.

One of the key elements of Whitehorse is an XML-based domain-specific language to describe services or pieces of a network infrastructure and how they connect. Microsoft plans to publish a software development kit for large companies that want to build DSLs.

"The value is there only if you're going to see a massive amount of productivity out of it, because it is a massive amount of effort to do it," Sridharan cautions.

Three designers that Microsoft plans to ship with Whitehorse will help users to create diagrams based on the DSLs. A logical infrastructure designer allows a user to visually depict, with boxes and lines, what each piece of hardware in a network can do. A service-oriented application designer can be used to describe Web services and the protocols to connect them. A class designer is for describing classes or interfaces and the inheritance relationships among them.

Using Whitehorse, an architect who designs a service-oriented application will be able to validate whether the application will work in the network topology that's described, Sridharan says.

And the action of dragging and dropping a service onto the service-oriented designer doesn't merely create a model, it also generates code, because the service-oriented designer is in sync with the class designer and the underlying code. Sridharan says users shouldn't expect 100% code generation, since they will still need to write business logic, but they will see progressively more code generation over time.

– Carol Sliwa

UML 2.0 ON THE WAY

Two IBM technologists involved with developing the standard discuss its future:

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SANs Come Up to Speed

OUTLOOK: Cost and backward-compatibility issues could delay acceptance of 10Gbit Fibre Channel in favor of two interim standards. **BY LUCAS MEARIAN**

EMERGING TECHNOLOGIES

STORAGE networking equipment vendors are preparing a slew of new Fibre Channel switches and host bus adapters that can effectively double the speed of current storage-area networks (SAN) to 4Gbit/sec. Products based on the 4Gbit standard, first advocated by chip makers last year and approved by the Fibre Channel Industry Association (FCIA) and the American National Standards Institute last June, are slated to roll out this year. The technology could serve as an interim migration step to products based on the 10Gbit/sec. Fibre Channel specification approved by the FCIA last November.

But not all users are convinced that more speed is better, especially where application servers are the bottleneck. "On the fabric side, it's screaming . . . but you'd saturate your [server] bus long before you'd saturate a 1Gbit or 2Gbit Fibre Channel connection," says Gary Pilafas, senior storage and systems architect at UAL Loyalty Services Inc., an Arlington Heights, Ill.-based unit of United Air Lines Inc.

Mike Bennett, a senior network engineer at Lawrence Berkeley National Laboratory in Berkeley, Calif., believes that new servers being offered with 64-bit processors and faster internal bus designs will require more than the additional bandwidth being offered by 4Gbit Fibre Channel switches, RAID controllers and host bus adapters for SANs.

"Two years out, is there going to be a market for it? I'd say no doubt. It's like garage space: If you have it, you'll fill it," Bennett says.

By that time, however, 4Gbit products will face competition from devices based on a faster 10Gbit standard. In fact, as vendors begin volume shipments of 4Gbit products this summer, they'll be introducing early 10Gbit products as well.

> **"It's like garage space: If you have it, you'll fill it.**
>
> **MIKE BENNETT**, SENIOR NETWORK ENGINEER, LAWRENCE BERKELEY NATIONAL LABORATORY

Bennett says 10Gbit Ethernet will challenge Fibre Channel as an alternative storage interconnect if Fibre Channel doesn't keep up, so a leap to 10Gbit is a must. But 4Gbit devices offer critical advantages: Analysts and vendors say the 10Gbit/sec. devices won't be backward compatible with current 1Gbit or 2Gbit products. And they're expected to cost about $5,000 per port — five times as much as current 2Gbit devices.

In contrast, the upcoming 4Gbit devices are expected to cost about $1,000 per port, the same as their 2Gbit cousins.

As a result, analyst Rick Villars at market research company IDC in Framingham, Mass., is bullish on the standard's prospects. He predicts that 4Gbit products will hit the market in the third quarter but account for just 10% of the market within the first 12 months. After two years, however, he expects that number to leap to 90% as competitively priced 4Gbit products replace slower offerings.

"They're going to be the best technology at the lowest price," Villars says.

Meanwhile, high prices and backward-compatibility concerns will limit the appeal of next-generation 10Gbit devices. "You have to replace anything that the 10Gbit technology touches with all-new 10Gbit equipment," says Villars.

The Third Option

Aware of these limitations, vendors came forward with the interim 4Gbit standard. And hedging their bets yet again, SAN equipment vendors have another interim Fibre Channel standard in the offing. Disk drive manufacturers are rallying around a newly proposed 8Gbit specification, and SAN managers could see products within three years, according to manufacturers.

Skip Jones, chairman of the FCIA's Speed Forum, says the organization held its first meeting on 8Gbit Fibre Channel last month. "If we get out there three years, and you're still paying a huge premium for 10Gbit technology and you want that backward compatibility, that's where 8Gbit will be attractive," he says.

For now, the focus is on 4Gbit products. Several vendors, including San Jose-based Hitachi Global Storage Technologies Inc., the disk manufacturing arm of Hitachi Data Systems Inc. (HDS), have announced 4Gbit Fibre Channel offerings (see box at right).

So where does that leave 10Gbit Fibre Channel? Despite the cost and compatibility issues, vendors see a place for the developing standard in high-end SANs. Hubert Yoshida, chief technology officer at HDS, says 10Gbit products will serve as an interswitch link that can cobble together many switches in a SAN fabric while using fewer ports. He also sees it as a way to create many virtual ports over one physical switch port. "Through the same physical port, we can allow up to 128 different users," he says.

Arun Taneja, an analyst at The Taneja Group in Hopkinton, Mass., predicts that the demand for 10Gbit Fibre Channel will be enormous, both for connecting internal disk drives to RAID controllers and for interswitch links in corporate SANs.

"There's no large enterprise I know of in the Fortune 300 or 400 range that doesn't have a massive number of Fibre Channel switches at this point in time. As they replace those switches or directors with 4Gbit Fibre Channel ports, there's no question they'll need multiple 10Gbit ports to balance that out," Taneja says. 45220

Fibre Channel Evolution

FIBRE CHANNEL TECHNOLOGY	PRODUCT AVAILABILITY	BACKWARD COMPATIBLE	COST PER PORT
2Gbit/sec	Now	Yes	$1,000
4Gbit/sec.	2004	Yes	$1,000
8Gbit/sec.	2007	Yes	Undetermined
10Gbit/sec.	2004	No	$5,000

The 4Gbit Players

Although some vendors are preparing 4Gbit Fibre Channel devices for release as early as this summer, others are more cautious.

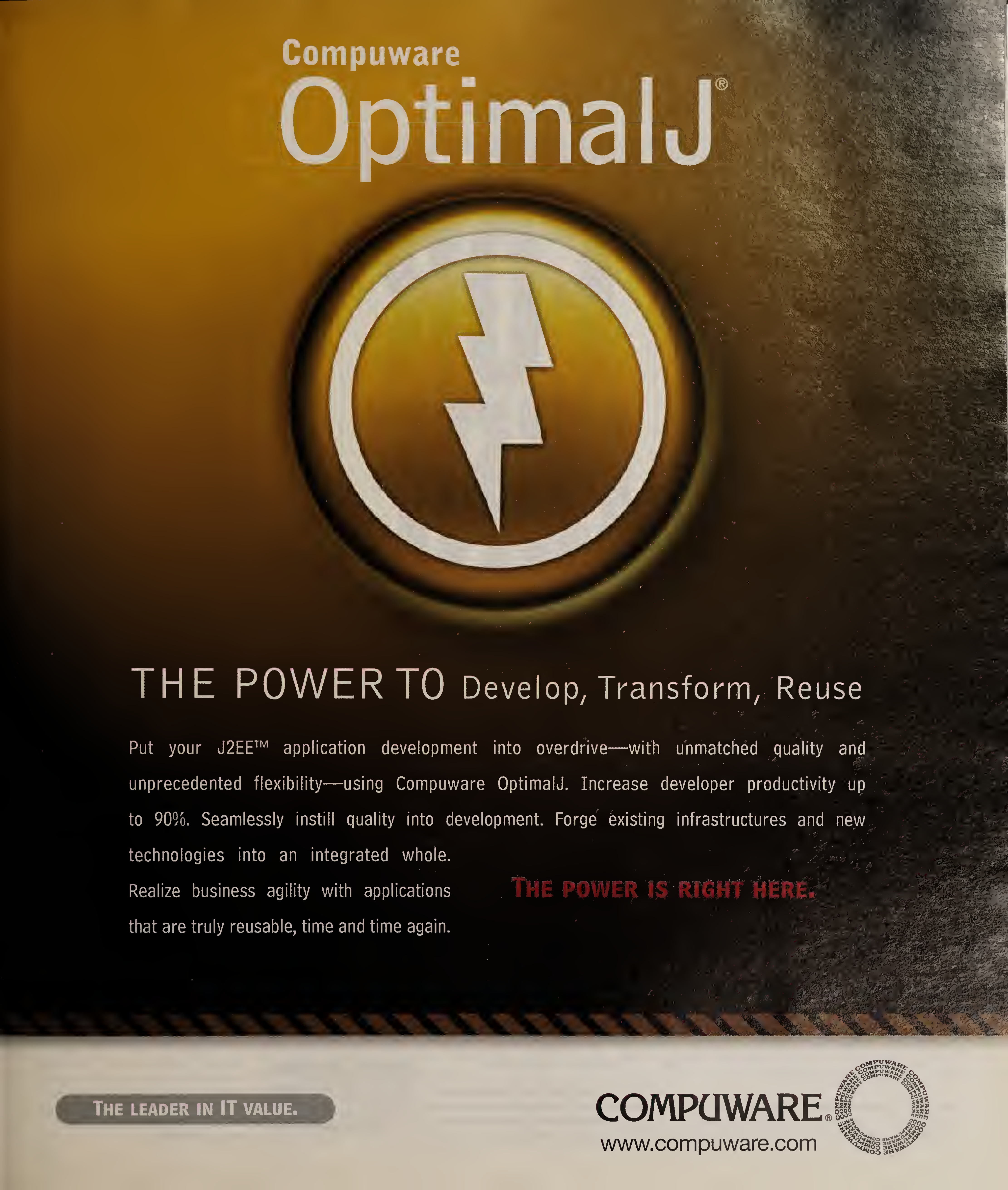
Hitachi Data Systems has begun joint testing of new 4Gbit/sec. hard drives with resellers and expects those devices to be available by summer.

Emulex Corp. in Costa Mesa, Calif., has announced its embedded 4Gbit storage switching technology and has plans for a host bus adapter this year and a 10Gbit HBA in 2005.

QLogic Corp. in Aliso Viejo, Calif., currently offers a switch that has two 10Gbit ports for interconnections between switches. By midyear, it plans to ship 4Gbit HBAs and switches that support 4Gbit/sec. and 10Gbit/sec. speeds.

Cisco Systems Inc. hasn't yet committed to producing 4Gbit products, but it has announced support for the 10Gbit standard. It plans to make a 10Gbit module available on its MDS 9000 SAN switches sometime this year.

Brocade Communications Systems Inc. in San Jose doesn't plan to begin testing 4Gbit and 10Gbit switches with storage device manufacturers until 2005.



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INNOVATION FOR HIRE

There's nothing magical about real innovation, *according to* **Satyam Cherukuri,** *CEO of Sarnoff Corp. His company, which grew out of the former RCA Laboratories in Princeton, N.J., aims to help its customers create products and services that will disrupt the marketplace with breakthrough technologies or breakthrough pricing. Cherukuri discussed the difference between new ideas and innovation, the methodology of innovation and why hot technologies are not the source of most innovation in the marketplace with* Computerworld's *Tommy Peterson.*

You speak of innovation as a competency you bring to your customer companies. Can you explain? There are broadly two types of innovation. Let's get our definitions straight — the phrase is used in so many different contexts. Businesses innovate and reconstitute themselves by changing their business models. The biggest story in the past 10 years in that direction was IBM. There is another aspect, which is innovation through introducing new products.

Our focus at Sarnoff and our core competency is really the creation of and introducing new product lines into the market. That's the context of innovation I'm talking about. Innovation in that context has often been associated with entrepreneurs who either through their brilliance or serendipity create new ideas, new gizmos, new things, and that's had, in fact, a significant effect on the marketplace. That's the traditional approach to innovation, which is driven by the venture-capital models funding entrepreneurs — all of that feeding into an ecosystem.

Innovation at Sarnoff is really a methodology. We take the artistic or the "black-magic" aspect out of that process, rationalize it and develop methodologies around it. It's not unusual for the instincts of the individual to drive any particular domain in the early stages of development where all of the forces or factors are not understood. As you understand different phenomena that contribute to successes or failures, then you can develop a methodology around it, which is what Sarnoff has done in the past 15 years.

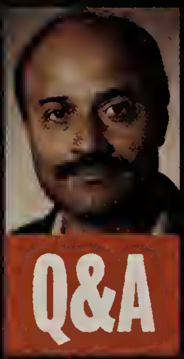
Is the key to that understanding and innovation being able to break it down into steps? Yes. But I want to separate out continual evolution of the product line from introduction of product lines that create a disruption in the market either through performance or cost or both. It's different from a Chevy owner getting the next model each year or an RCA or Toshiba introducing the next DVD every year. Going from VCR to DVD was innovation. Evolving the DVD product line on a six-month basis is what I call operating evolution.

It's not the idea we're talking about; it's not the research we're talking about — it's introducing a disruptive performance or cost break into the market that causes a disruption in the marketplace.

There are three factors that are always in interplay, and that's why innovation has for the most part been a black art. That term is used by scientists to mean you cannot derive it from equations; it is something you intuit. When you understand things, it's not magic. It's governable; it's manageable.

What are the forces that need to be understood? Innovation is about bringing technology, business model and capital together. Those are essential ingredients, necessary but not sufficient. The reason the venture-capital model is optimized for an 80% failure rate is what the VC world knows from experience. Even after they have identified a specific business proposition, because there's a technology risk, there's a market risk, and if they're not dealt with in a timely fashion, you run out of capital. So how you reconcile these in a systematic way is what I'm talking about as a competency.

SATYAM CHERUKURI



Q&A

Title: CEO, Sarnoff Corp.

Age: 47

Accomplishments: Cherukuri joined Sarnoff as a researcher in 1989, was named managing director of the company's life sciences and systems unit in 1998, and became Sarnoff's chief operating officer in 2001. He took on the role of president and CEO in 2002. He has authored or co-authored more than 12 technical publications and is the inventor or co-inventor listed on more than 25 U.S. patents.

Are you saying that all our notions of innovation as coming from a flash of inspiration are wrong and that it really comes from knowledge and analysis of the process in the past? When you're just playing with technology, you're too far away from reconciling with the market. You think you're succeeding, but in no context. There's no context to define what success means. You've got to sell a product in the market, and that's really what innovation is all about.

Is there a secret to successful innovation? The key to innovation is having the ability to change the business model at a moment's notice. And the doom of innovation is the opposite — if you're reluctant to change the business proposition, you're very likely to fail.

We are always engaged in development projects in large corporations and in government institutions, and my personal observation is that the single biggest reason for their failure is that they're not willing to change the original objective. Because when the original objective becomes irrelevant — I'm not saying it must become irrelevant, but it often becomes irrelevant — the initial teams lock into them. They're afraid to change those objectives in a timely manner. That is really what leads to running out of capital. You may have the right technology and the right business model in the end, but you didn't change them soon enough before you either ran out of capital or time. Innovation has to be delivered in a timely manner. The window of opportunity and the framework of investment are variables, but necessarily finite variables.

What technologies do you find the most intriguing right now? I hate to look in my crystal ball, but I suppose it's an amusing exercise. There are a couple of institutions — I don't want to name them because I don't want to offend them — that put out the top 10 technologies every year. I've been reading them for the last 30 years. I never see them make sensible projections on anything.

I could talk about how nanotechnology is going to be great, but what I'm saying is that innovation is not that simple. In the innovation game, that temptation needs to be gotten away from. You need to be cognizant of the fact that at any given time, there are a lot of technology forces out there, but never lock in on which one is going to be the next hot one. Keep your options open until you see strong evidence of which way to go. Don't create a business plan with the assumption that nanotechnology is going to be the one, because that rarely works.

There is always a continuing expansion of science and technology, and there is always a continuing expansion of engineering capabilities. From the beginning of mankind, that growth has always been exponential. But innovation is not about science or technology or engineering. Innovation is about reconciling those with the market to create new products. So I don't really care about hot technologies, because business opportunities are always there no matter what the conditions are, and we help our customer find them. On the other hand, if you have a hot technology that gives you a substantial competitive advantage, go for it. Sarnoff has, for example, the highest power laser ever created. It's still far away from an innovation project, but if we have the science harnessed into innovation, hey, that's going to make us a lot of money. **45297**

MORE ON INNOVATION

For more of the Cherukuri interview, visit our Web site:

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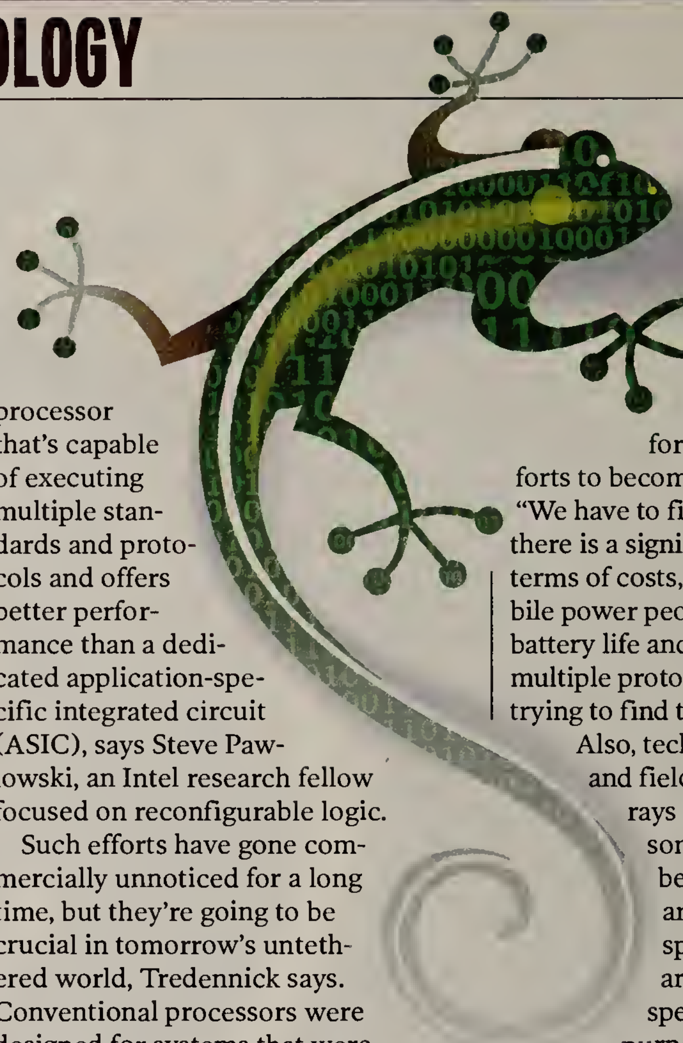

JOHN BRILLON

IMAGINE a handheld device that combines the functionality of a cell phone, a PDA, an MP3 player, a digital camera, a television and a half-dozen other devices.

Whatever the merits of such a gizmo, for the moment at least, building it is still infeasible. The separate microprocessor logic needed for each function would require far too much real estate and energy to fit into anything resembling a decent handheld.

Proponents of a long-held concept called reconfigurable computing think they may have an answer to the problem.

Reconfigurable computing involves processor hardware capable of automatically adapting to changing application needs. Unlike the permanently etched circuitry on current-generation static microprocessors, the wiring on reconfigurable processors can be redrawn on the fly by software- or hardware-based microcontrollers, to match the function being performed. By opening and closing the millions of logic gates on such chips, their circuitry can be changed so as to perform signal processing one instant, for example, and an encryption function the next.

DEFINITION

Reconfigurable Computing

Chips or systems capable of modifying themselves, while running, to meet different application needs.

Because reconfigurable computing chips do away with a lot of the redundancy and overhead found on static processors, they also consume less energy while delivering greater speed.

For instance, a single such chip in a cellular handset could configure itself to search for a local base station, then establish its identity on the cell and finally send or receive calls — tasks that today require multiple chips.

"What you are trying to do is to change the hardware to match the problem at hand," says John Watson, co-founder of QuickSilver Technologies Inc., a developer of adaptive computing technologies in San Jose.

Such malleable chips represent a fundamental shift in microprocessor design, says Nick Tredennick, a former microprocessor architect and editor of the *Gilder Technology Report* in Great Barrington, Mass.

"All the microprocessors that we have today are basically 30- or 40-year-old designs," says Jim Turley, an independent analyst in Pacific Grove, Calif. "We are fundamentally making the same computers our grandfathers did, even though silicon technology has improved dramatically."

Though it might sound radically new, the concept of adaptive computing architectures has been floating around in one form or another for some time. Indeed, several companies — from relatively unheard-of start-ups such as QuickSilver and GateChange Technologies Inc. to the likes of Intel Corp., Motorola Inc. and Infineon Technologies AG — have efforts under way in the area of reconfigurable computing.

For example, QuickSilver offers an integrated circuit technology that dynamically changes at runtime to create the hardware needed for different applications. Someday, such technology could form the basis of a universal cell phone or be used in flexible automotive electronics components, Watson says. Similarly, Intel's efforts in this area include a project to develop software-defined radio that uses software to automatically reconfigure all the hardware logic on a chip, with no mechanical switching of circuitry.

The idea is to eventually build a general-purpose wireless communications processor that's capable of executing multiple standards and protocols and offers better performance than a dedicated application-specific integrated circuit (ASIC), says Steve Pawlowski, an Intel research fellow focused on reconfigurable logic.

Such efforts have gone commercially unnoticed for a long time, but they're going to be crucial in tomorrow's untethered world, Tredennick says. Conventional processors were designed for systems that were largely static and derived their power from wall sockets, he says. As a result, the focus of most early microprocessor design was on price/performance per unit — squeezing out ever-faster clock speeds from a piece of silicon while keeping unit costs reasonably low.

With the advent of laptops and notebooks, the focus shifted to microprocessor power levels as well, Tredennick says. As more devices start going mobile, there is going to be an even greater focus on price/performance per watt of power consumed, he says.

Fixed-circuit microprocessors are quickly reaching certain physical limits that will make it extremely hard to maintain the power/performance balance for much longer, making reconfigurable architectures inevitable in the untethered world, Tredennick says.

But getting there isn't going to be easy, everyone agrees. In fact, few expect to see widespread use of dynamically reconfigurable chips within five years.

Pawlowski predicts that it will take at least until 2007 for Intel's software radio efforts to become commercially viable. "We have to first prove internally that there is a significant product benefit in terms of costs, power and area. Our mobile power people are expecting longer battery life and the flexibility to handle multiple protocols," he says. "We are trying to find the perfect fit."

Also, technologies such as ASICs and field-programmable gate arrays (FPGA) already offer some of the same benefits being touted by adaptive architectures. ASICs are special-purpose chips and are more efficient at doing specific tasks than general-purpose microprocessors.

FPGAs are devices whose hardware logic can be reprogrammed in the field to accept hardware updates or bug fixes. But neither ASICs nor FPGAs offer the flexibility that adaptive architecture promises. Both technologies are also relatively expensive and, in the case of FPGAs, too power-hungry.

Building adaptive chips can also be difficult. Writing the programs that instruct each of the millions of logic gates in such chips to open and close so as to alter the circuitry on the fly can be incredibly complex.

The hardware design tools to do these sort of tasks are only just emerging, Pawlowski says.

Also, Turley says, "most people haven't really wrapped their heads around how to create and manage computers that change on the fly." Nor is there a full understanding of what applications might truly benefit from the approach, he says. For the moment, mobile devices present the biggest opportunity for adaptive computing.

"Someone is going to have to build a very high-volume application for the case to be really compelling," Tredennick says. "Nobody has done anything that is really [commercially] successful" so far. But that could begin changing soon, he says. **45334**

JUST WHAT IS IT?

Some vendors define *reconfigurable computing* loosely:

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Security Tools Search Falls Short

Disk encryption and identity management products on display at the RSA Conference don't quite fit. By Mathias Thurman

I RECENTLY attended the RSA Conference in San Francisco, looking for information on encryption and identity management products. I also attended sessions on identity management, vulnerability assessment, security information management and wireless security. All were well attended. On the show floor, meanwhile, many vendors had found a way to put a Sarbanes-Oxley spin on their products.

One of my focus areas this year is mobile device protection, particularly disk encryption. I decided that we needed such a product because 20 to 30 mobile devices go missing from my company each year. Most of those are laptops, along with a few handheld computers and BlackBerry e-mail devices.

SECURITY MANAGER'S JOURNAL

A few of the company laptops that disappeared last year were assigned to executives and contained sensitive information. In one case, an executive responsible for software engineering lost a machine that contained the design documents for a new product line, as well as employee contact lists, financial reports and merger and acquisition information. All the data resided within an unencrypted directory. In the wrong hands, that data could have had a significant negative impact on our company. In another case, a salesperson reported that a laptop containing confidential price lists and a locally cached customer list had been stolen.

Now I'm looking for an encryption product to deploy first on the machines of these "high-risk" employees, as we refer to them, with an eye toward potentially installing it on the thousands of machines in use throughout the company. My initial choice is to use the Encrypted File System feature that comes with Windows. Since all of our laptops use Windows 2000 or XP, both of which include EFS, that approach makes a lot of sense.

EFS is fairly easy to deploy, allows for a key escrow capability, includes strong encryption and can be made seamless to the user. If we want to do so, we can also add two-factor authentication to further improve security. However, standardizing on EFS leaves out other mobile devices.

Finding a single encryption product that can address all of these devices would be ideal, but I suspect we will need to deploy several different ones. Unfortunately, few vendors at the show had products in this area, and I'm not too excited about the products I did see. I'll call in other vendors once I complete my risk analysis.

> We needed [a disk encryption] product because 20 to 30 mobile devices go missing from my company each year.

Identity Crisis

I also spent some time with identity management product vendors. Compliance with regulations like Sarbanes-Oxley is a big issue for my company. Identity management tools address the need by controlling access to our many homegrown applications.

About 80% of the applications we run are developed in-house. Although many are written using a standard platform such as J2EE, authentication, authorization and access isn't standardized. Instead, each application is a separate entity with its own database of users, creating a management nightmare.

Some applications support the financial aspect of our business, which is where Sarbanes-Oxley comes in. Identity management tools could provide a single point of user and password management, provisioning, access control and authentication for all of our applications.

One control that we might be asked to test is the ability to quickly remove a user's access to specific financial applications. Currently, this process requires access to many applications to ensure that the user's account is disabled. With an identity management system, it would be a one-step process.

The promise of these tools is that an individual's identity and access rights can be defined and managed from a single point. The vendor marketing made this all sound fairly straightforward, but as I began peeling the veneer off the products, there was a familiar tone to it all.

The state of identity management reminds me of when we first started looking at public-key infrastructure (PKI) about 18 months ago. Vendors and integrators generated a lot of excitement and made many promises, but when they got down to the details, we found that we could enable only certain aspects of our business for PKI, not everything. Interoperability, resources and cost became issues. It just didn't make sense at the time, so we put it on the back burner and eventually lost funding for it.

Another potential benefit of identity management is the ability to share aspects of a user's identity between entities, whether they are within the confines of the corporation or between organizations. But this means I must trust the other company with my employee identity information. Vendors call such sharing of identity elements "federated identity management," but they support two competing standards in this area: Web Services Federation and Liberty Alliance. WS-Federation was developed by a group of companies that includes Microsoft Corp., IBM, VeriSign Inc., BEA Systems Inc. and RSA Security Inc. The Liberty Alliance is more of an open-source community project. At this point, I've decided to wait for a clear standard to emerge and for the inevitable vendor shakeout.

Back at the office, the most pressing issue is establishing security standards. Setting application security standards seems to be very time-consuming for us. I'm meeting with development team managers to ensure that what we come up with makes sense and is attainable. I should be done in the next few weeks. Then I can turn to other issues on the project list: patch management, wireless security, vulnerability assessment scanning, personal firewalls and security information management. ◗

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

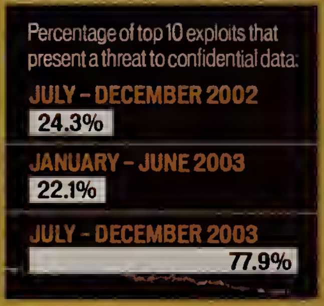
Recommended Reading

Anyone who wants to know more about federated identity management should read the white paper "Liberty Alliance & WS-Federation: A Comparative Overview" at the Liberty Alliance Project Web site. You'll find the PDF at QuickLink a4150.

– Mathias Thurman

Exploits Target Confidential Data

More exploits than ever are putting confidential user data at risk, according to Symantec Corp.'s recently released "Internet Security Threat Report." The percentage of the top 10 threats attacking user data increased to 77.9%, and the reach of those exploits has increased, with the volume of submissions rising by 519%. Among the growing blended threats are stealing documents, passwords, keystrokes and encryption keys, the Cupertino, Calif.-based antivirus software vendor says. The report, which includes a list of the top 10 threats, is posted at *www.symantec.com*.



NetScreen Updates IDS

NetScreen Technologies Inc. in Sunnyvale, Calif., has announced a new version of intrusion-detection and -prevention software for its NetScreen-IDP line of hardware. IDP 3.0 includes features for analyzing network and application traffic, thwarting Internet worm outbreaks and spotting rogue applications. The software, which ships in early April, will run on the full line of NetScreen-IDP products.

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BRIEFS

NetIQ Launches AppManager Beta

NetIQ Corp. in San Jose has announced a beta version of Net AppManager 6.0, which is designed to enable IT groups to manage service delivery to internal users in networks and systems. It is also able to measure compliance with service-level agreements. The beta version of Net AppManager 6.0 is available now; the product will be generally available before July. It is priced at $2,500.

Red Earth Boosts Policy Patrol

Red Earth Software LLC in Portsmouth, N.H., announced Policy Patrol Version 3.0, a set of software products for e-mail filtering. New features include improved spam protection through Bayesian filtering, remote image detection and word-pattern matching. Policy Patrol Enterprise includes content checking and attachment blocking. Pricing ranges from $95 to $395 per 10 users.

IBM to Sell Opteron Workstation

IBM in May will sell the IntelliStation A Pro, an Opteron-based workstation, with pricing starting at $2,619. IBM will load Red Hat Enterprise Workstation 3.0, which will support 32- and 64-bit applications, on the workstation if needed. It will also support SUSE Linux and Microsoft Windows.

Veritas Upgrades Storage Software

Veritas Software Corp. in Mountain View, Calif., announced it has upgraded its Cluster Server and Volume Replicator storage software products, integrating them as a disaster recovery suite. Both offer the ability to fail over applications and replicate data over an IP network. Cluster Server 4.0 starts at $2,995, and Volume Replicator starts at $4,495.

TOMMY PETERSON

IT Must Earn Respect Anew

THE CEO OF A software company told me recently that the "defensiveness" of IT organizations is one of the most pervasive problems in the industry these days. It undermines their standing within their companies and reduces their influence in decision-making.

He asked me not to attribute the comment to him because "the last thing those people want to hear is some vendor suggesting they've got a bad attitude."

TOMMY PETERSON is *Computerworld*'s Technology editor. Contact her at **tommy_peterson@computerworld.com.**

That CEO is not alone in noting that something has gone sour in IT's relationship with both the business side and users. The barely veiled hostility between IT groups and the folks who sit on mahogany row and in the cube clusters has become a common topic of conversation.

There are good reasons for IT workers to be edgy. Those whose jobs haven't been eliminated or sent overseas are working harder with smaller budgets — and they're getting a lot less respect for the work they do. It's the respect factor that may be the crux of the issue.

Several years ago, I worked in the headquarters of a large newspaper chain. The IT staff had convinced management that physical security for the computer room was crucial, and they had sequestered themselves away in a windowless corner office, barricaded by a reinforced door with a combination lock.

They ventured out of their fortress only to chastise us users about cyberhygiene and to restart applications that had been fouled by stupid-user tricks. We viewed them as eccentric, and they irritated us with their arrogance. But they knew things we didn't, and in truth, they saved our butts more times than we liked to admit.

At one point, upper management began huddling with the in-house geeks and a gaggle of consultants, trying to choose a new "front-end" system — although we doubted the execs actually knew the difference between a front end and back end.

Management even hired a vice president charged with developing our online operation. It seemed that the geeks were going to rescue our content from legacy media, too.

But it didn't quite work out that way. The vice president lost his job in a round of downsizing. The fortress was dismantled when half the building was leased to another company. The IT staff now runs itself ragged maintaining the operation and searching out troublesome rogue applications that have been installed by users who have become too smart for their own good.

In that business, as in many others, IT has been demystified both by a simple process of increasing user familiarity and by design, as complex technology has been pushed down through organizations. The IT department is no longer populated by the keepers of arcane technical secrets; it's a support service.

At the upper-management level, technology is no longer an adventure — CIOs had better be able to prove that the IT strategy lines up with the greater business strategy of the company, or they won't be around very long.

This is a natural progression as the industry matures, but that doesn't make it any easier to swallow for the people whose status has declined as the uncertainties of their jobs have escalated.

In many cases, IT's response is, well, defensiveness. When I returned to the newsroom the day I spoke to that CEO, I checked the *Computerworld* Web site for coverage of our Premier 100 conference. There I found a description of the verbal sparring between Bob Metcalfe, father of Ethernet and defender of the IT faith, and Nicholas Carr, author of the infamous "IT Doesn't Matter" article that appeared in the *Harvard Business Review* last May. Metcalfe's spirited and witty defense of the industry [QuickLink 45332] was no surprise, nor was Carr's slightly peevish but exceedingly lucid defense of his contention that IT can no longer offer companies a competitive advantage.

The surprise came in the intensity of emotion demonstrated by the IT executives in the audience. They kept the debate going with comments and questions half an hour over its allotted time, and many in the crowd were clearly very angry at Carr. Despite the provocative title of his article, Carr acknowledges that IT is absolutely essential to modern business — it's just not going to drive the business models of non-high-tech companies.

IT is used to leading the parade. Yet it will earn back the respect it has lost only by making the adjustments needed to march in step with the rest of the band. **45517**

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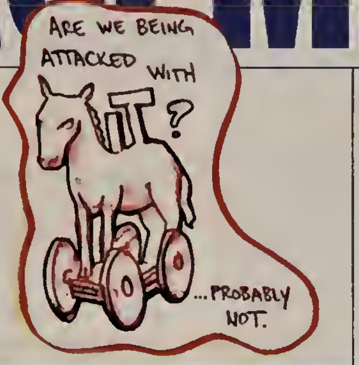
Play War!

War games can make strategic planning come to life. Companies can simulate business moves — such as strategic IT investments — as well as competitors' countermoves. **Page 42**


ARE WE BEING ATTACKED WITH IT?
...PROBABLY NOT.

Career Watch

Vince Campitelli describes the work of IT auditors at Wachovia Corp. and gives career advice for IT professionals considering a move into IT auditing. **Page 44**

OPINION

The Case for IT Leasing

Are you sure you want to purchase that new computer? Norbert Kubilus says today's flexible leasing deals can be a very attractive way of turning over some IT risks to the leasing company. **Page 45**

DAVID HOLLENBACH

OUTSOURCING Gotchas

Hidden traps lurk in every outsourcing contract. Here are **12 BIG ONES** – and how you can avoid them.

BY KATHLEEN MELYMUKA

TO A CIO, OUTSOURCING contracts may look like other procurement and service agreements, but they're much riskier. "You're writing a contract for a service that's impossible to describe, that will change over time and need to be renegotiated, that will make you dependent on the service provider and for which termination is not an option," says Paul Roy, a partner at Mayer, Brown, Rowe & Maw LLP in Chicago, who has put together some of the largest outsourcing deals in history. "That's not an ideal negotiating position," he adds.

Roy and other attorneys who specialize in outsourcing have seen the challenges CIOs face when they sit down to negotiate outsourcing deals. Here's some advice on gotchas that can undo the unwary:

PROBLEM: Unresolved issues. Amid the pressure to get the deal done, the outsourcer may push you to sign before pricing or service levels are nailed down, promising only minor adjustments later. "The supplier may say, 'This is standard; we do this all the time,' " says Bob Zahler, a partner in the outsourcing practice at Shaw Pittman LLP in Washington. "But in our experience, in every case that has produced a bad result."

SOLUTION: "It's much better to resolve those things beforehand, even if it means delaying the signing," Zahler says. It takes many months to put together an outsourcing deal, he adds, so if you know you don't have sufficient data to establish service levels or pricing, start measuring immediately.

PROBLEM: Fixed service levels and incentives can become antiquated over time.
SOLUTION: Design the agreement to be flexible so you can add and remove service levels and set incentives so you can move from one service level to another, says Roy. Include a mechanism that allows you to ratchet up service levels to keep pace with the market, focus on things that create business value and adapt over time.

PROBLEM: Fuzzy scope. The standard contract has voluminous descriptions of scope of service — often in excess of 100 pages, Zahler says — but they're written by technical people who aren't as precise and detailed as they should be. "And clients don't read them," he adds.
SOLUTION: Zahler's firm breaks IT into 77 detailed processes based on industry standards and creates a matrix with processes down the left side and the client's description of his IT group across the top. Then they color-code supplier and customer responsibilities. "It's easier to do a contract that way and it gets clients to focus on scope of service," he says.

PROBLEM: Tasks missing from scope. No matter how careful you are with the scope of work, you'll miss something, and that can cost you more, Roy says.
SOLUTION: Build in a "dragnet" clause that states the following:

- The outsourcer will do everything your staff did over the preceding 12 months, even if you neglect to list it.
- The outsourcer commits to perform the function as it's performed in the market, recognizing that things will change over time.

PROBLEM: Exclusivity. In order to get economies of scale, critical mass and broad integration, the outsourcer will want the exclusive right to perform the functions in the contract. "But think very carefully about this," Roy says. "Not all suppliers have equal capability in all functions. This is one of the biggest problems we see."
SOLUTION: Retain the right to perform the function in-house or send it to a third party, Roy says. This right allows you to maintain competitive pressure on the outsourcer and test service levels in categories where there may be problems. If the outsourcer is weak in one function or region, you can take back that piece or give it to someone else. "Where you have multiple outsourcing agreements, over time you may find that what you've outsourced to one supplier really fits better with another," Roy says. "This enables you to reorganize the matrix of outsourcing functions."

PROBLEM: Damages waivers. The outsourcer wants to cap reimbursements for direct damages — out-of-pocket expenses you pay because of its failures — and completely waive indirect or consequential damages, such as lost profits or a decline in stock price, as a result of such failures. "That means if you outsource the call center and the vendor messes up and you lose $10 million in profits, if it didn't 'cost' you anything, you would have essentially no recourse," says Brad Peterson, a partner in the outsourcing practice at Mayer Brown. "It is one of the most dangerous provisions."

WATCH WHAT YOU WISH FOR

IN THE "HOT FLUSH OF ROMANCE," both parties want to get the deal done and see the benefits as soon as possible, says Gregg Kirchhoefer, a partner at Kirkland & Ellis. "It's hard to think of the negotiation process as anything other than a hindrance," he says. But try to view it as an opportunity to identify problems, deal with those issues and lay the foundation upon which the relationship can grow and prosper in the long term.

There's a certain adversarial element to any contract negotiation, but don't get so tied up on gaining the upper hand that you blow the long-term benefits for short-term advantage. "Be careful what you ask for, because you just might get it," Kirchhoefer says. An outsourcing arrangement is like a three-legged stool: scope of services, performance and price, he explains. "If you lengthen or shorten one, the rest gets out of balance," he says.

Realize that both parties have legitimate interests, and fashion a contract to build and foster the relationship, he says. "Otherwise, you may win the negotiation but create a dynamic that's a disservice to what you're trying to accomplish, a breach waiting to happen."

– Kathleen Melymuka

SOLUTION: This is difficult to work around, Peterson says, but three tactics may help:

- Try to negotiate the cap on direct damages as high as possible. The outsourcer will want to limit it to one to three months' revenue; try for 12 to 24 months. "Get the number high enough to provide a meaningful remedy," Peterson says.
- If you must waive indirect damages, demand as many exclusions as you can. For example, retain the right to indirect damages if the outsourcer fails to provide termination assistance or if your company is sued for intellectual property infringement based on software the outsourcer is using.
- Make sure the contract defines specific amounts the outsourcer will pay if it fails to perform.

PROBLEM: Decreasing costs. Technology costs — especially in areas like telecommunications — can decline dramatically over time, but an outsourcing contract can span five to 10 years. How do you avoid overpaying?
SOLUTION: Write short-term contracts for the most volatile pieces, or allow the outsourcer to provide the service on the condition that it passes through to you any cost reductions from its supplier on a dollar-for-dollar basis. (You can require the outsourcer to disclose its costs or certify when it has renegotiated.) "The supplier keeps the margin, but they don't get a windfall, and this allows you to get into a longer-term contract," Roy says.

PROBLEM: Benchmarking can be ineffective in complex outsourcing deals because it's very difficult to find comparable situations at other companies.
SOLUTION: Benchmark the prices of individual components and regions, Roy suggests. For example: How much are you paying for application programmers in India compared with the competition? Keep in mind that this type of benchmarking requires the outsourcer to charge a straightforward amount for each component. That means no cross-subsidizing (subsidizing an expensive element in the contract — say, mainframe maintenance — by raising profits on another element, such as applications development).

PROBLEM: Lock-in. For business reasons, you may need to terminate the outsourcing contract for convenience — that is, without a failure or breach from the outsourcer. But the fee can be prohibitive.
SOLUTION: Outsourcers try to set a termination-for-convenience fee as high as possible to lock you in, says Peterson, but be sure it's low enough that termination remains an option.

PROBLEM: Ownership of intellectual property developed in the course of outsourcing is always in contention. You want to own what you've paid for. The outsourcer wants to own what it has developed.
SOLUTION: Focus on whether the application is strategic to your business, says Gregg Kirchhoefer, a partner at Kirkland & Ellis LLP in Chicago. If an application isn't strategic, let it go, but you may want to negotiate some return on that investment in terms of royalties or other compensation.

PROBLEM: The outsourcer's people are critical because of the close interaction between supplier and customer, but you have to cede control of personnel.
SOLUTION: Retain the right to approve six to 12 people in certain key positions who solve problems and interface with management, such as project executives, help desk managers, systems architects and software troubleshooters, Roy says. Get commitments that those people will stay on for a reasonable minimum time and, when they do leave, that you'll interview and approve their replacements. Retain the right to request reassignment of people who don't work out and to hire the outsourcer's staff at the end of the deal.

PROBLEM: Ignoring termination issues. In the eagerness to get the deal done, people often pay insufficient attention to termination, causing trouble later.
SOLUTION: Focus on what should happen under various circumstances: termination at the end of the contract, termination for cause or termination for convenience. Carefully consider the rights and responsibilities of each party in each circumstance, and be sure the contract reflects that, says Kirchhoefer.

"When [termination] happens, the parties won't be talking as much and won't be as interested in helping each other out," he notes, "so you want to have clear-cut rules." **45017**

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PLAY WAR!

Strategic planning comes to life when war games are used to simulate business moves – such as IT investments – and countermoves.

BY GARY H. ANTHES

THEY DIDN'T UNDERSTAND the threat until it was too late. For years, the cyberattacks came, increasing in sophistication and growing in the damage they did to the U.S. economy and to certain targeted industries in particular. Just when the nation was awakening to the nature of the threat — thanks to a defector from the enemy side — the enemy country switched to bioattacks. Like the cyberattacks, these were hard to pin down. (That outbreak of mad cow disease was an accident, wasn't it?)

So clever were the attacks that in most cases, U.S. officials didn't know just where they were coming from. As a result, their foreign policy toward the originating country was wholly inappropriate: They spent billions on weapons to defend against a military threat, when in fact the opposing country was hellbent on economic warfare.

Fortunately for the U.S., this isn't a true story. It's a brief summary of a two-day war game that played out recently in Newport, R.I. Put on by the military strategy experts at Alidade Inc., the game pitted a Blue Team (the U.S) against a Red Team (an Asian country, perhaps China). The players were mostly military types hoping to hone their strategy skills, but some players, including this reporter, were there to see how war-game concepts might be applied in the commercial world.

The teams began by deciding how to spend their military budgets — $300 billion for Blue, $30 billion for Red — and over the course of five moves, each one covering a period of five years, Blue and Red took turns acting and reacting with various military and foreign-policy actions. For example, when Blue and Orange — Orange is a country in Red's region with close economic ties to Red — agreed to a joint military exercise, Red saw it for what it was: a naked attempt by Blue to exercise influence in Red's back yard.

The Red Team, meeting in a hotel conference room next to Blue, considered six responses, including doing its own military exercises with Orange, funding massive high-tech economic development in Orange and threatening nuclear proliferation in the region.

Red ended up making only token moves in any of those directions. Instead, it focused on beefing up its cyberwar capabilities, both offensive and defensive, while making various cosmetic overtures to Blue, such as proposing to establish joint projects in biotechnology, ecology and IT.

Red Team Commander Scott Borg, a senior research fellow at the Institute for Security Technology Studies at Dartmouth College, describes Red's winning strategy this way: "We knew Blue wouldn't attack us, and we knew we couldn't win any military conflict with them. So we made it an economic war." Although Borg conceived of most of Red's ideas, he nevertheless learned something new from them. "It will keep me awake at night," he says. "It's made me realize all the things a Red Team really can do."

Mismatched Moves

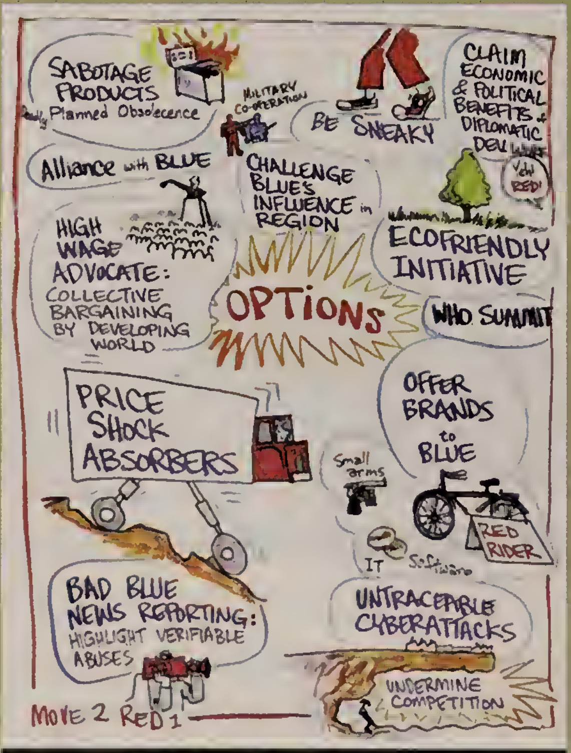
Jeffery Cares, president of Alidade and a self-styled "military innovation expert and naval futurist," says teams in war games often misread each other and respond inappropriately. "Often Blue plays A/counter A, while Red plays D/counter D." That's what happened in this game.

And that's what often happens in the corporate world, where companies with entrenched strategies — reinforced by success — fail to anticipate out-of-the-box competitive moves. For example, IBM in the 1970s failed to foresee competition for the mainframe.

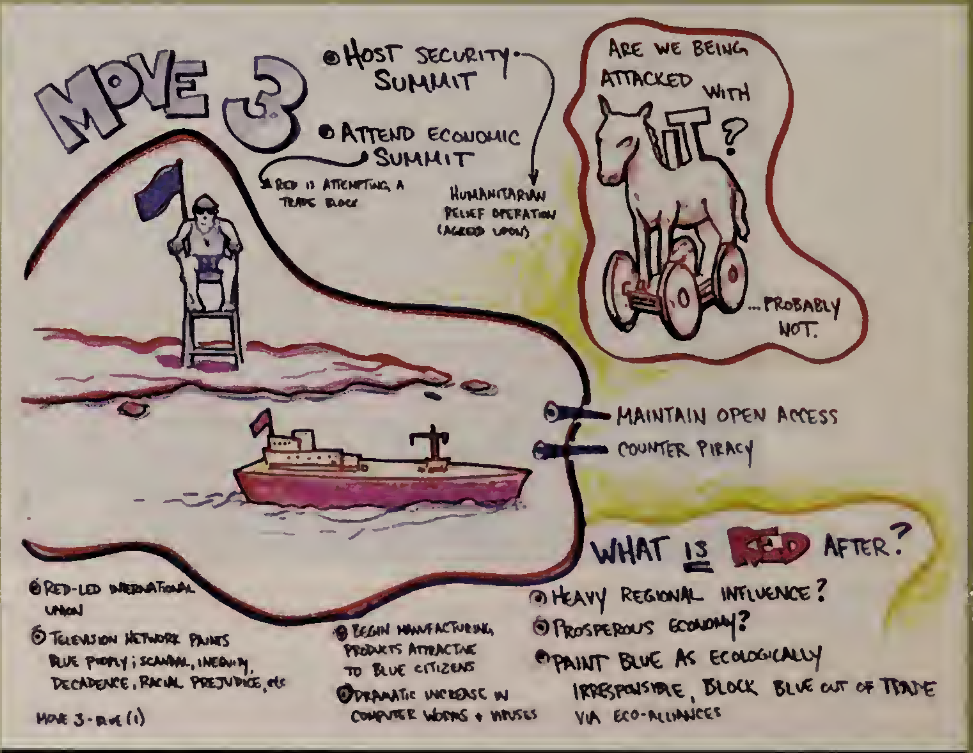
War games can be a uniquely effec-

RED TEAM VS. BLUE TEAM

Professional illustrators from Alphachimp Studio Inc. worked in real time throughout the two-day war game to chronicle the strategies, moves and countermoves of the Red Team and the Blue Team.



In Move 2, Red considers and takes a number of options aimed at giving the appearance of cooperation with Blue while overtly and covertly competing economically.


MOVE 3
HOST SECURITY SUMMIT
ATTEND ECONOMIC SUMMIT
RED IS ATTEMPTING A TRADE BLOCK
HUMANITARIAN RELIEF OPERATION (AGREED UPON)
ARE WE BEING ATTACKED WITH IT?
...PROBABLY NOT.
MAINTAIN OPEN ACCESS
COUNTER PIRACY
WHAT IS RED AFTER?
HEAVY REGIONAL INFLUENCE?
PROSPEROUS ECONOMY?
PAINT BLUE AS ECOLOGICALLY IRRESPONSIBLE, BLOCK BLUE OUT OF TRADE VIA ECO-ALLIANCES
RED-LED INTERNATIONAL UNION
TELEVISION NETWORK PAINTS BLUE POORLY; SCANDAL, INEQUITY, DECADENCE, RACIAL PREJUDICE, etc
BEGIN MANUFACTURING PRODUCTS ATTRACTIVE TO BLUE CITIZENS
DRAMATIC INCREASE IN COMPUTER WORMS + VIRUSES
MOVE 3 - BLUE (1)

In Move 3, Blue still has trouble understanding the economic and cyber war game that Red is playing.

tive way for corporations to do long-range planning for investments, including IT investments, says Paul A. Strassmann, a lecturer in national security studies at Syracuse University and a *Computerworld* columnist. "I am a strong believer that war-gaming will displace much of what these days is called corporate strategic planning," he says. Strassmann is a former CIO at several Fortune 50 companies and a former member of the Pentagon's war-gaming simulation review board.

The time has passed when IT can justify its budget solely on the basis of its contribution to the efficiency of the corporation, Strassmann says. It must now work at a more strategic level. "Global competition is now conducted in terms of commercial information warfare, and IT is a weapon of choice," he says. "So competitive planning in the commercial sector really becomes war-gaming. Then the question is, Will the CIO get a seat at the table when the game is played?"

> **"The secret of its great power lies in the existence of the enemy, a live, vigorous enemy in the next room waiting feverishly to take advantage of any of our mistakes, ever ready to puncture any visionary scheme, to haul us down to earth."**
>
> **CAPT. WILLIAM McCARTY LITTLE, U.S. NAVY, 1912**

Virtually all companies do long-range planning. But doing "what if" speculations with co-managers around the boardroom table doesn't produce the kinds of insights and discoveries that players say can come out of a formal war game. "The worst thing that can happen in strategic planning is that the boilerplate plan from last year is dusted off, the blanks are filled in, it's distributed, and people immediately file it on the shelf next to last year's plan," says D. Scott Frondorf, president of Nextscale Inc. in Cincinnati and a member of the Blue Team in Newport.

"You have to do something that brings the strategic plan to life," Frondorf says. "You have to give it character and a space in which to operate. Something like a war game does exactly that. In fact, it could be a test for the boilerplate plan."

Testing the boilerplate is just what a major manufacturer did in a recent war game, Strassmann says. The game pitted a Red Team, consisting of managers who had put together a traditional five-year plan, against a Blue Team of lower-level line managers responsible for making the plan happen. Perversely, this arrangement forced those who had developed the plan to attack the company trying to live by it. "The result was counterintuitive" for the participants, says Strassmann, who moderated the game. "At the end of the game, everybody said, 'Hell, we didn't know this.' "

"The top management that prepared the plan had never walked the shoes of the other guy," Strassmann says. "Now that they had Red shoes on, they saw the vulnerabilities of the Blues and they said, 'We are just going to take them to the cleaners.' "

DRAMA COUNTS

"We did some hoopla," says former CIO and IT strategist Paul A. Strassmann, who moderated a recent war game at a major company he won't name. "We dressed the Red Team in East German surplus uniforms. The game was held off-site, and because this was war, everybody had to show up at 6:00 a.m. The Reds went in one bus and the Blues in another, and the Red bus played German military songs.

"A war game is really a psychological thing, a dramatic exercise," Strassmann says. "People get very upset."

The game helped the company realize it had an ace in the deck all the time, Strassmann says. "The ace was one of many projects pursued on an exploratory basis in advance engineering. The game moved the project high on the list of priorities and accelerated deployment. This turned out to be a great success in gaining market share."

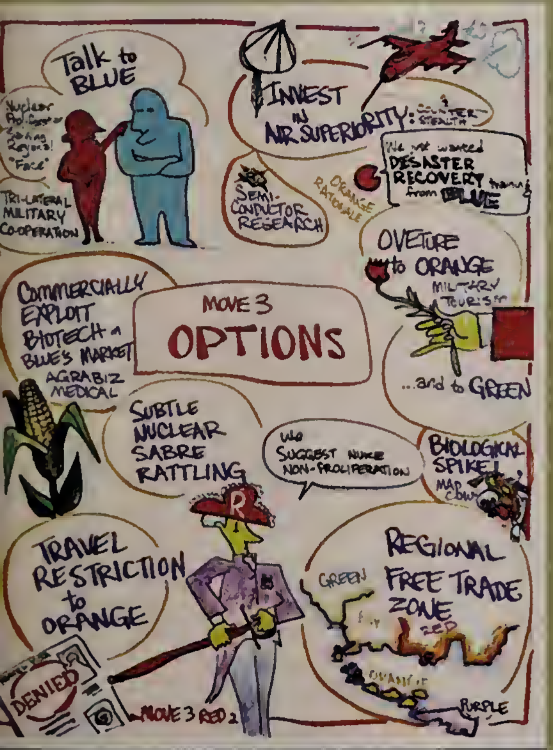
This particular game focused on product development and marketing and not directly on IT issues, but the CIO did participate, Strassmann says. "The CIO gained enormous understanding of the marketing issues, and I understand he subsequently reallocated some of his priorities," he says.

Jack Reader, a senior business development manager at Cisco Systems Inc., attended the Alidade war game and says the concept could be applied internally for long-range planning. "But no one here has bought into it yet," he says. "These out-of-the box things take a while to find the right sponsorship at a big company like Cisco."

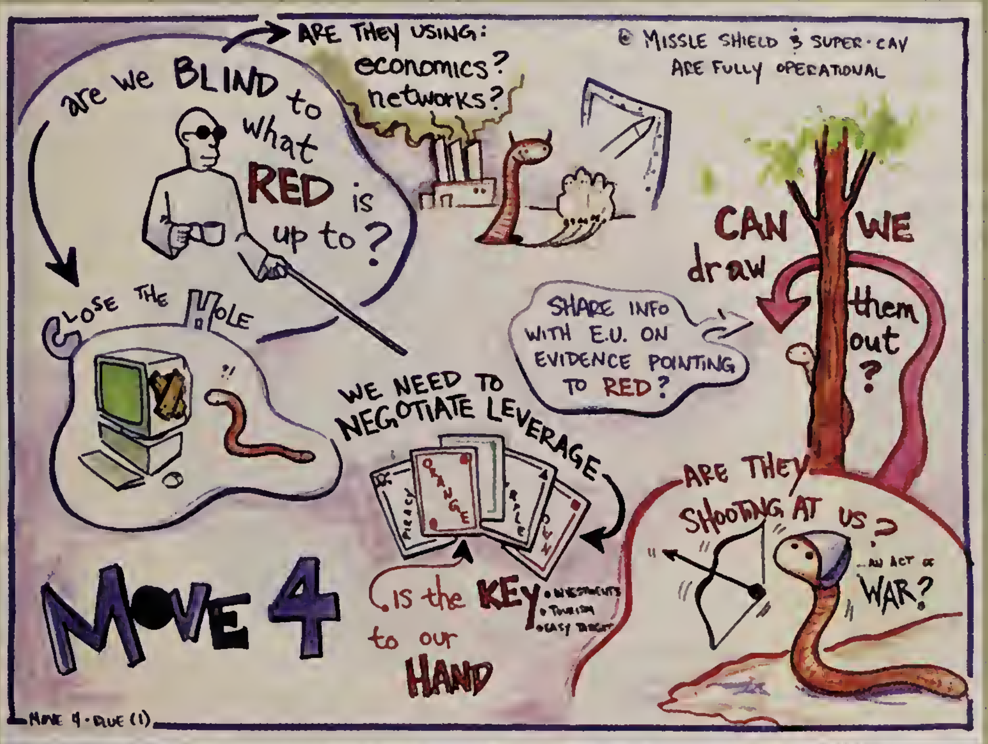
Reader says war games are well suited to corporations faced with making expensive and complicated long-term technology choices. For example, he says, a CIO at a small bank might adopt the role of a Red Team against a larger competitor's Blue Team or, if the CIO works for a dominant bank, it could play the role of Blue against smaller competitors playing Red.

"What would you do if your CFO came down the hall and told you your IT budget had been cut 80%?" Reader says. "As it turns out, there are some pretty decent strategies when you are the small guy. It's less brute force; it's about being smarter."

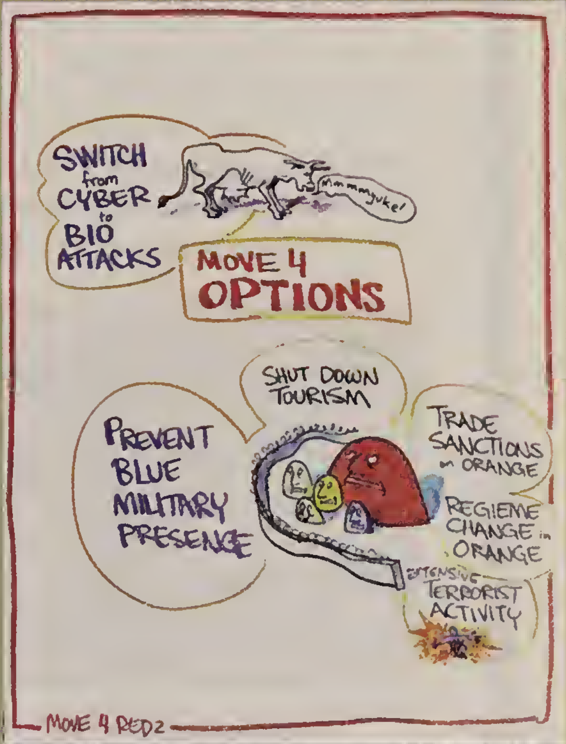
Alidade likens its war games to "exploring the landscape." Now, having played the game, Frondorf agrees. "A war game forces you to think through the scenario and create what I call 'trail heads,' places that mark pathways to explore," he says. "I like to say that everything interesting happens at the boundaries. In IT, that's especially true." **45012**


Talk to BLUE
Nuclear Proliferator Saving Regions! "Face"
TRI-LATERAL MILITARY CO-OPERATION
INVEST in AIR SUPERIORITY: COUNTER-STEALTH
We not wanted DISASTER RECOVERY training from BLUE
SEMI-CONDUCTOR RESEARCH
ORANGE RATIONALE
OVETURE to ORANGE MILITARY TOURISM
...and to GREEN
MOVE 3 OPTIONS
COMMERCIALLY EXPLOIT BIOTECH in BLUE'S MARKET AGRABIZ MEDICAL
SUBTLE NUCLEAR SABRE RATTLING
We SUGGEST NUKE NON-PROLIFERATION
BIOLOGICAL SPIKE! MAD COW
R
TRAVEL RESTRICTION to ORANGE
DENIED
REGIONAL FREE TRADE ZONE
GREEN
RED
ORANGE
PURPLE
MOVE 3 RED 2

Meanwhile, Red considers a rich array of military and economic options – both overt and covert – and continues to keep Blue off balance.


ARE THEY USING: economics? networks?
© MISSLE SHIELD & SUPER-CAV ARE FULLY OPERATIONAL
are we BLIND to what RED is up to?
CAN WE draw them out?
CLOSE THE HOLE
SHARE INFO WITH E.U. ON EVIDENCE POINTING TO RED?
WE NEED TO NEGOTIATE LEVERAGE
PIRACY
ORANGE
PURPLE
GUN
ARE THEY SHOOTING AT US?
...AN ACT OF WAR?
MOVE 4
IS the KEY to our HAND
• INVESTMENTS • TOURISM • EASY TARGET
MOVE 4 • BLUE (1)

By Move 4, the Blue Team senses that it isn't in control of the game and is confused as to what Red is up to. Blue now sees the struggle as mostly an economic one, but its discovery has come too late.


SWITCH from CYBER to BIO ATTACKS
Mmmmyuke!
MOVE 4 OPTIONS
SHUT DOWN TOURISM
PREVENT BLUE MILITARY PRESENCE
TRADE SANCTIONS on ORANGE
REGIEME CHANGE in ORANGE
EXTENSIVE TERRORIST ACTIVITY
MOVE 4 RED 2

Finally discovered in its cyberattacks, Red switches to untraceable bioattacks while simultaneously building defenses against Blue incursions into Red's region.

Career Watch

Think Small

Full-time job growth continues to disappoint economists, financial analysts and, most of all, job seekers. But that's not to say there isn't any IT contracting work out there, says Michael Alter, president of SurePayroll Inc., a Skokie, Ill.-based payroll outsourcing company.

SurePayroll's client base comprises 11,000 small companies, which Alter says are hiring IT contractors at a greater rate than ever before. For the 2003 tax year, the number of Form 1099 wage statements – the ones issued to freelance and contract workers – rose 12% among SurePayroll's client companies. "A lot of this contracting is for IT," Alter says. "Small businesses are realizing they can get access to a tremendous number of highly qualified people with specialized skills who have been laid off by large companies. On average, small companies can and will hire 10 programmers to do 10 specialized projects, rather than a single $100,000-a-year programmer."

For the month of February, the latest period for which statistics are available, U.S. payrolls outside of the farm sector grew by just 21,000 jobs and the unemployment rate held steady at 5.6%. In January, 97,000 jobs were added to the economy.

– *Julia King*

Vince Campitelli

Q&A

Title: Managing director, enterprise technology audit

Company: Wachovia Corp., Charlotte, N.C.

What he does: Leads a 60-person audit team focused on identifying and managing risks associated with the use of IT at the $2.4 billion bank, the fourth-largest in the country. In banking and financial services, 70% to 80% of all risk is technology-related, because IT is so pervasive in the business. Campitelli believes the need for IT risk auditors is growing in other industries as well, as all companies become subject to new regulations, such as the Sarbanes-Oxley Act and the Patriot Act.

What does an IT risk auditor do exactly? It entails looking at everything in the technology infrastructure – networks, operating systems, program change controls, disaster recovery, information security, LANs, WANs and voice networks. You assess the risks of all of these technologies and the way they are being managed. Then you develop a three-year audit plan under which you'll look at every component in the architecture, looking at the high-risk technologies every year and the medium-risk items every other year or third year. It's like sampling New York City restaurants. You never get finished because by the end of the first year, you have changed the infrastructure so much that you have to sample more things.

What kind of skills do you look for in an IT auditor? These are hard-core technology people. They understand Unix, firewalls, networks and operating systems, and they understand them from a risk and control perspective. They don't need to be Java programmers, but they need to understand how to control Java programs and best practices for developing, inventorying, testing and rolling out changes.

What's your career advice for an IT professional looking to move into IT auditing? The No. 1 quality you need is professional skepticism. You believe everybody and trust no one. It's also all about communication. IT auditors are focusing on new products, new services and new projects. They need to make sure the CIO understands the risk and has a good way of managing it. In my opinion, risk and understanding risk is a major black hole. What's needed is a good dialogue between business management, financial management, IT personnel and IT auditors. You have to come up with a common language that all people understand.

How do you do that? Have a good training curriculum for IT people. For new IT hires, we build in an appreciation for risk and risk assessment controls into the core training. The other thing we do is get senior people to fully support it. That then significantly reduces the challenge because brand-new people are all for it. 45276 – *Julia King*

Double Vision

Business and IT executives don't see eye to eye on where their problems lie.

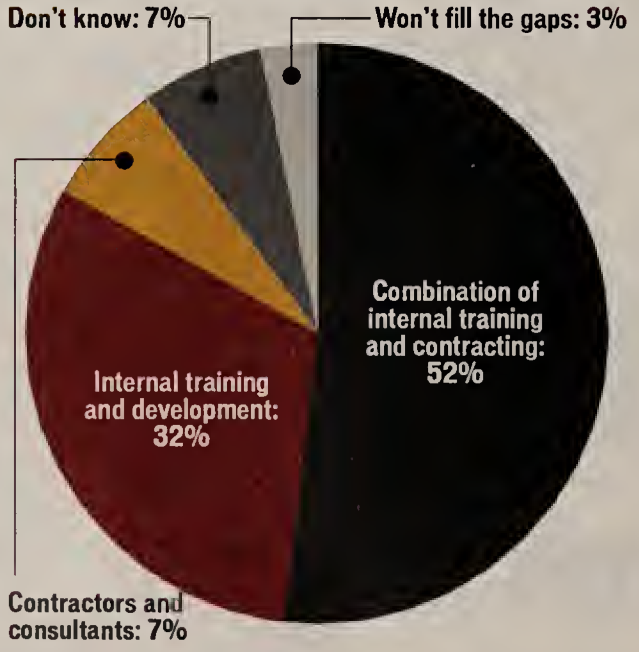
Which IT skill sets are lacking in your IT organization to the point where it threatens success in 2004?

	Business	IT
Speed and customer responsiveness	33%	28%
Project management	33%	26%
Leadership/change management skills	30%	25%
Strategic thinking	35%	22%
Analytical thinking	25%	17%

Base: 818 senior executive decision-makers at North American companies; multiple responses allowed

SOURCE: FORRESTER RESEARCH INC., 2004

How will you make up for your shortfalls of IT skill sets in 2004?



Base: 364 North American decision-makers (Percentages don't total 100 due to rounding.)

SOURCE: FORRESTER RESEARCH INC., 2004

Numbers Crunch

60% to 70%	Percentage of IT executive jobs filled via peer networking.
20%	Percentage of IT executive jobs found by directly contacting company executives.
4%	Percentage of IT executive jobs found through online job boards.
16%	Percentage of IT executive jobs found through company Web sites.
35	Minimum number of hours a full-time job seeker should spend searching each week.
2	Minimum number of weekly networking meetings to include in the search.

SOURCES: IT MANAGEMENT PARTNERS INC., DULUTH, GA

BRIEFS

Retailing CIO Now CTO at Newgistics

Austin-based Newgistics Inc., which helps direct retailers handle returned merchandise, last week named Joe Phillips as chief technology officer, reporting to the CEO. Phillips previously held CIO positions at Blockbuster Inc., Eckerd Corp. and Rite Aid Corp. He holds a bachelor's degree in math and physical science from Troy State University.

Unova Taps Taylor For IT, HR Roles

Unova Inc., a mobile and wireless systems company in Everett, Wash., last week named Sue Taylor as CIO and vice president of human resources. Taylor previously served in those dual roles at Intermec Technologies Corp., which is Unova's automated data systems division. Her previous positions at Intermec included IT director of global systems, director of global telecommunication and client services, and leader of the company's custom software development. Taylor holds a master's degree in business administration from the University of Iowa and a bachelor's degree in business administration.

Trash Hauler Names New CIO

Waste Management Inc. in Houston recently named Lynn M. Caddell as senior vice president and CIO. Caddell will succeed the company's former CIO, Tom Smith, who retired March 8. Caddell will lead a group of more than 400 IT professionals and report to the CEO. Caddell will join Waste Management from Yellow Technologies Inc. in Overland Park, Kan., where she has served as president since November 1999. Caddell holds a bachelor's degree in history from Jacksonville University and a master's degree in systems engineering from the University of Arizona. She also completed an executive education program at Harvard University.

NORBERT J. KUBILUS ▪ PEER TO PEERS

The Case for IT Leasing

TO LEASE OR NOT TO LEASE? That's the question facing many IT executives today as they grapple with justifying the expense of technology investments.

All indications are that corporate capital commitments are on the upswing, especially in the area of IT purchases. With interest rates rivaling those of the 1960s, there's a strong temptation to buy new hardware and software. But how wise is it to *purchase* the new technology? Rapid obsolescence of technology is a serious problem, especially for companies that have a strategic need to keep pace with changing technology. Such large capital expenditures require a major cost-justification effort and make it harder for companies to conserve working capital.

NORBERT J. KUBILUS is a CIO partner at Tatum Partners in San Diego. He can be contacted at **Norbert.Kubilus@tatumpartners.com.**

When a business purchases computer equipment, the typical financial assumption is that the equipment has a five-year life span. It becomes a capital asset of the company that depreciates in value over the five-year period. After three years, 40% of the equipment's value is still on the company's books, but there's little technological value left in it. This value gap is the key reason for interest in IT leasing.

Operating leases are quite attractive for IT because they treat computer hardware and software as expense items, like a company does for commodities such as disks and printer paper. The short-term monthly cost of IT leasing is always significantly less than that of borrowing the money to buy the equipment. For the same computers worth the same amount, over the same term and for the same down payment, monthly lease expenses will be 30% to 60% lower than loan payments, even at today's best interest rates.

During the first three to five years of the equipment's life, the overall cost of leasing compared with buying is approximately the same, assuming the financing deal in each case runs the same length of time *and* the company sells the equipment at the end of the loan.

Some lease-vs.-buy comparisons show that buying costs slightly less than leasing does, but this is based on the bad assumption that purchased equipment will return full market value if it's sold or traded at the end of the loan.

While there is a secondary market for used computer equipment — just look on eBay — it takes time and effort to obtain full market value when disposing of computers by the hundreds or thousands. The hassles of managing obsolescence and disposal will make leasing seem a lot more favorable. The leasing company assumes both risks.

The CIO should look for a properly structured leasing program that offers more than just cash-flow benefits and technology risk avoidance. A key feature of such a program is effective asset management. The leasing company owns the equipment and is responsible for maintaining the physical inventory for each piece of equipment on lease, including a description, serial number, asset tag number, acceptance date, installed location and lease termination date. It also collects and pays sales taxes, use taxes and/or property taxes based on where the equipment is located.

Leasing programs can be very creative and customized. A typical program involves a master lease with schedules that permit timed acquisition of equipment from multiple vendors. The phased acquisition could be especially useful for, say, a gradual rollout of point-of-sale systems at hundreds of outlets around the country. Some leasing programs also incorporate a lease line of credit that lets the CIO add hardware and software as needed and incorporate them into the program.

From a return-on-investment perspective, the CIO can also use a master lease to fix per-seat costs on an ongoing basis. This allows the CIO to keep the company at an appropriate level of technology for a predictable monthly cost that can be budgeted in advance. Also, services can be bundled into monthly lease payments. The master lease can cover upfront consulting and training costs, as well as those for monthly support and maintenance.

For CIOs who are convinced that hardware and software are commodities rather than capital assets, leasing makes more sense than ever. And the flexible and customized leasing options available today make it an even more attractive alternative. **45412**

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Date Posted: 03-11-2004

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Cover letter and resume to NaviSite, Inc. jnazarian@navisite.com.

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Requirements: PLEASE INCLUDE JOB CODE IN SUBJECT LINE OF E-MAIL.

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University of Illinois at Chicago

Administer UNIX, Windows NT and other servers used for teaching; programming; provide instructional technology consulting to faculty; help develop technology-based courses and teach computer seminars and workshops. The applicant should have a Bachelor's Degree in Computer Science or related field, and have teaching experience. The successful candidate should have two years of combined experience in Windows NT, and UNIX system administration, Webmaster experience, programming in HTML, Perl and C, and have experience in teaching, course development and in using computer and Internet technology in education. Working knowledge of Apache, IIS, Tomcat, Oracle, PL/SQL, Transact-SQL and multimedia authoring tools are a plus. Please submit resume by 4/23/04 to Mint Simagrai, Academic Computing and Communications Center, 1940 W. Taylor, Room 124 (M/C 135), Chicago, IL 60612. UIC is an Affirmative Action/Equal Opportunity Employer.

IT Business Manager, Wachovia Corp. Charlotte, NC. Develop and implement IT business solutions for various business units across the bank. Responsible for overseeing several IT projects simultaneously. Reqs. BA in Bus. Admin. & 2 yrs exp. in the pos. offered or as a Systems Architect or Solutions Architect. The 2 yrs must incl. work deploying internet appls. in the financial services industry, incl. but not limited to secure online appl. and defining & delivering segment based portal & appl. strategies w/ a strong focus on the small business customer segment. 40hrs/wk. Send resume & cvr. ltr. to Jane Higgins, 401 S. Tryon Street, NC 0958, Charlotte, NC 28288. No phone calls please.

Trading Systems Developer, Charlotte, NC, Wachovia Corp. Develop & write computer programs for fixed income and risk mgmt. systems. Reqs. MA in Computer Science & 2 yrs exp. in pos. offered or as an Analyst Developer or Software Engineer. The 2 yrs must incl. work w/ trade processing concepts rel. to electronic, manual trading, STP and settlements & must incl. designing and developing software appls. for fixed income trading using C++, Java Perl, RV Messaging, Rouge Wave, Windows NT, Unix, Sybase in a distributed computing environment. M-F, 40hrs/wk, Send resume and cover letter to Edward J. Hayes, Wachovia Corp., 401 S. Tryon Street, NC0958, Charlotte, NC 28288-0958. No phone calls.

PROG. ANALYST -
ORACLE FINANCIALS

Dvlp customized applns to Oracle Financials software package. Upgrade, patch releases & test to client specs. Integrate with Customer Relationship Mgmt applns like Siebel. MS degree in Comp. Sci., MIS or Comp. Engnrg + 5 yrs exp. in job offered or in Software Engnrg w/Oracle Financials reqd. 40 hrs/wk, OT as reqd, 8am - 5pm, $66,730/yr. Qualified applicants please submit resume to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No. WEB 400015.

IT Technical Lead, Wachovia Corp. Charlotte, NC. Lead IT team that develops, creates, and modifies computer applications. Oversee budget preparation and track IT project expenses. Reqs. MA in Computer Science, Prod. or Mechanical Eng. and 2 years of exp. in the pos. offered or as a Software Engineer or Computer Programmer. The 2 years must incl. working w/ check imaging and online banking systems using internet technologies such as JAVA, WebSphere, iPlanet and UNIX and must have included managing an IT projects with a budget in excess of $1 million. 40hrs/wk, Send resume & cvr. ltr. to Jane Higgins, 401 S. Tryon Street, NC 0958, Charlotte, NC 28288. No phone calls please.

SENIOR SOFTWARE ENGINEER to design, develop and test various application software and web-based GUIs for the telecommunication Industry using Object Oriented programming techniques, Java, Servlets, Applet, EJB, JSP, J2EE, Design Patems, C, C++, HTML, XML, UML, JavaScript, SQL, VC++ and COM/DCOM under Windows NT/95/98 /2000/XP, HP-UX, Sun Solaris and Linux operating systems. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Programmer/Analyst or Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Eduardo Santos, Custom Software Solutions, Inc., 1002 Williamson Lane, Snellville, GA 30078; Attn: Job NH.

PROGRAMMER: Convert to flow charts for coding: develop & write programs: program & maintain websites. Req.: Bachelor's in IT. (employer will accept foreign degree equiv. or equiv. in exp. or any comb. of edu./exp.) Resume: Atlanta Retailers Assoc. LLC, 3300 Buckeye Rd. # 698, Atlanta, GA 30341.

Software Engineer: Dsgn. & devlp. supply chain ntwrk. soft. Plan & dsgn. SAP R/3 soft. w/ APOimplem. to optimize cost & profit based supply chain syst. consid. asset utiliz. & inv. constr. Invlvs. demand plan. & SNP interf., creation of plan. areas & books, SNP build plan gener., interf. of master data & CIF to R/3, live cache & datab. & soft. config. Work could be in unantic. locs. across the U.S. Req. are Bach. Deg. in Comp. Sci. or Comp. Eng.+ 2 yrs. exp. 40 hrs./wk. $80,000/yr. Submit resume to the Career Link at 1855 New Hope St., Norristown, PA 19401and ref. job order #WEB401097.

Software Engineers needed to dvlp, test, implmnt s/ware applics using Java, J2EE, EJB, C++, DHTML, XML, XSLT, Struts, JSP, Shell Scripting, Oracle, TCP/IP, SONET, SS7, X/Motif, SilkTest, WinRunner, & Purify on Windows & UNIX. Send resume to: Global Consultants, Attn: Hireme, 8800 Grand Oaks Cir #100, Tampa, FL 33637.

Software Engineer for Tewksbury, MA based developer of software products for J2EE web applications, portlets and web services. Requires Bachelor of Science degree in Computer Science, Computer Engineering or related area and one (1) year experience in object oriented design of web-based software applications using Java, JSP, XML and relational databases including configuring production deployment environments, conducting software requirement analysis, performing unit testing, developing software QA processes, creating product and technical documentation and providing customer support. The position is located in Tewksbury, MA with 15% travel. Send resume to Bowstreet, Inc., Human Resources, Ad Code: 0492, 200 Ames Pond Drive, Tewksbury, MA 01876.

Systems Software Engineer: Responsible for research, design, develop & test operating systems software. Translate clients' requirements into Urdu language for overseas engineers. Require: BS in Computer Science/Engineering + 2 years of exp. Send resume to: Memory4Less, Inc., 2622 W. Lincoln Ave., #104, Anaheim, CA 92801, Attn: HR Mgr or fax to: 714-821-3361.

Programmer Analyst needed w/ exp in s/w applications using SQL queries, VC++, C# & ASP.NET. Work on XML based EDI applications using Java, J2EE, XSL, SQL Server, ADO.NET & .NET technologies on Unix & Windows platforms.

Programmer Analyst w/exp in multithreaded programs using ASP, IIS,C++, VC++, MFC, Win32 SDK, ODBC, GUI, WinSock, SQL Server, Windows NT/2000 & frontend tools.

Programmer Analyst w/exp in using C++, Java, HTML, XSL/XML, Java Script, PL/SQL, Windows & Unix. Integrate legacy appl. using VITRIA & interface with Oracle.

Mail resumes to: Compu-Info, 410 Kingston Road, #2A, West Kingston, RI 02892.

K&M Softech is looking for programmer/system system, software/project engineers or IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/++, VB, Java, Oracle, SAP, SQL are plus. Please send resumes to Recruit@kmsoftech.com. EOE.

Software engineers/system analysts wanted by ASI DataMyte. Candidates must have BS with min one-yr exp to develop GUI and server database systems. Skills in VC++, Java, VB, Oracle preferred. We offer competitive wage with full benefit. Apply at hr@asidatamyte.com. EOE. No calls.

Project Leader. Corning Incorporated in Coming, NY, seeks Project Leader to develop and support information technology, business, manufacturing and quality systems for science and technology organization. Requires Bachelor's degree in Information Management, Computer Science, Engineering or related field and relevant experience including management of IT-related projects, programming languages such as Java, C. C++, Visual Basic of HTML and application development using relational databases such as Oracle, MS SQL Server or MS Access. To apply please forward your resume to stoneer@corning.com and reference opening 9543.

Senior Developers needed. Seeking qualified candidates possessing MS or equiv. and/or rel. work exp. Degree must include coursework in Object Oriented Programming and Modern Operating Systems or related. Job duties include: Research, design and develop software systems. Analyze and develop feasible computer solutions for business propositions and operational needs of clients using modern operating systems. Troubleshoot and debug systems. Travel to set up software systems and train users. Work w/ J2EE, Webservices, Java, C++, ASP and Perl. JOB IS LOCATED IN SALT LAKE CITY, UT. Mail res., trans, ref. & sal. reqs to: SBI Group, Inc., 410 Townsend Street, San Francisco, CA 94107.

Project Leader (Colorado) Understand client requirements to develop, test, implement, and maintain business application systems using VSCOBOL 11, COBOL, JCL, SAS, VSAM, DB2, CICS, SPUFI, QMF, PROEDIT, PANVALET, PLATINUM, XPEDITER, FILE AID. 40 hrs per week, 8:00 a.m. - 5:00 p.m., $57,450 per year. B.S. in Computer, Engg or related field req'd, plus 5 yrs experience on the job, or 5 yrs experience in any occupation involving software engineering or similar duties. Application is by resume only. Send resume to Workforce Development Programs, P.O. Box 46547, Denver, CO 80202, and refer to order number CO5071407.

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Project Manager, Alpharetta: Manage deployment process, incl. design, development, coordination & maintenance of data management system for collection of field data from remote locations & for client billing purposes; coordinate data to be accessed by clients via corporate website & 24 -hr automated account inquiries; manage integration of recording equipment into client locations; document technical requirements necessary for redesign of systems. Lead small internal development team. Req: Bachelors (or foreign equiv) in any field + 4 yrs in job or as Project Manager - Data Management Systems (any industry). Send resume to US Energy, 1455 Alderman Drive, Bldg 100, Alpharetta, GA 30005.

Biostatistician

The Medical College of Wisconsin is seeking a Biostatistician. The biostatistician position is responsible for providing statistical analysis and programming support for research projects. Qualified candidates must possess a Master's degree in Statistics, Computer Science, Computing or Bioinformatics, as well as one year of prior work experience as a computer software professional and knowledge of bioinformatics analysis tools, UNIX, Matlab, C++, FORTRAN, and statistical analysis packages SAS, S-Plus or SYSTAT. Interested applicants please provide a resume and a cover letter with salary requirements to: Medical College of Wisconsin, Attn: Employment Office - JMC0322, 8701 Watertown Plank Rd., Milwaukee, WI 53226, Fax: 414-456-6502.

Corporate Computer Services (CCS) has multiple openings for System/Programmer Analysts, S/W Engineers, both entry & experienced levels (minimum BS). Skills in C/C++, VB, Oracle are plus. We are small but we do not lay off. Attractive wage w/ benefits. Apply HR@ccsiusa.net. EOE.

ShellSoft seeks IT professionals (programmer/system analysts, software engineers), project en-gineers. Our minimum requirement is BS. Good skills using Oracle, VB, SAP, SQL, Java, C/C++ preferred. Some position requires travel. Please send resume to jobs@shellsoftinc.com. EOE.

SAP SYSTEMS CONSULTANT MULTIPLE POSITIONS

Analyze procedures & sftwr req & plan, design thru ASAP methodology, using MYSAP.COM Enterprise Resource Planning Sys to meet GASB 34 & 35 & fiscal req, & split processor for fund accounting primarily for US public sector. Integrate, test, identify problem, consult & recom solutions. M-F 8-5 Salary comm w/ exp. BSc. Computer Science or Info Sys or equiv ed & exp & 2 yrs exp req. Resume to Labyrinth Solutions, Inc., 8 Oneida Road, Winchester, MA 01890.

WebMethods - EAI & B2B Certified Programmer/Analysts: Analyze, design, develop, test, implement & administer specialized web apps. including e-procurement & supply-chain solutions in Web Methods 4.6 and 6.0.1. & Java suites, JDE One World/SAP Adapter, Oracle, MS-SQL, Rational tools, EDIINT (AS2), RNIF 1.1 Web/Apps. on Servers (WebLogic, Net dynamics, Apache - Tomcat, Jboss) in various OS. Send resume to Attn: Position 101/2004, 66 Perimeter Center East, Ste. 600, Atlanta, GA 30346. EOE.

F/T Instructional Technology Database Support Developer. Responsible for assisting faculty in using available technology to enhance teaching and learning using Tango 4.5 middleware and Dreamweaver. Maintain and extend currently available learning technologies and promote their wide and effective use. Design, create, develop and maintain customized database-driven information and decision support systems and solutions using 4D, ERDs, and Relational Database Management System. Develop and maintain online learning services. Server maintenance and administration. Customize database-driven systems development using Normalization and Banner. Educational background must have included the above referenced computer skills. Must have a Master's in Management Information Systems or related field. Salary: Competitive. Send resumes to: Dr. Dwight Call, GA College & State Univ., CBX 049, Milledgeville, GA 31061.

Senior Systems Analyst. Corning Incorporated in Corning, NY, seeks Senior Systems Analyst to design and develop applications, infrastructure and information management systems that meet business requirements. Requires Bachelor's degree in Information Management, Computer Science, Engineering or related field and relevant experience including work with relational databases such as Oracle, SQL Server or MS Access, programming languages such as Java, C, C++, Visual Basic or HTML, and experience with object-oriented design. To apply please forward your resume to stoneer@corning.com and reference opening 9542.

Senior Lead Systems Analyst. Corning Incorporated in Corning, NY, seeks Senior Lead Systems Analyst to develop IT solutions by creating new and modifying existing software applications for science and technology organization. Requires Master's degree in Engineering or Computer Science and relevant experience in the stages of innovation in an R & D environment, data application development in Oracle using SQL and/or PL/SQL, and customizing Manufacturing Execution Systems. To apply please forward your resume to stoneer@corning.com and reference opening 9544.

Cydent, Inc., a provider of software services based in Pleasanton, California, is looking for a Senior Computer Programmer. Job duties: Design, develop, test & improve DMS for Internet and Intranet Oracle-based applications by leading team of programmers & engineers. Consult with management personnel to clarify program intent, identify problems, and suggest programming and coding required. Supervise and review work of programming personnel. Test run programs and train programmers. U.S. or foreign technical B.S. & 5 yrs. exp. in industry required. Please email resumes to resumes2004@cydent.com.

McData Corp. seeks applicants for the position of Software Engineer to work in Sunnyvale, CA and other unanticipated job sites in the U.S. to develop Fibre Channel switching fabric protocol and services, including various Fibre Channel switching services software components to interface with proprietary network management subsystems. Requires master's in computer science and working knowledge of networking protocol and storage protocol, SNMP, zoning protocol and failover algorithm. Respond by resume to Peter Whittle, McData Corp., 380 Interlocken Crescent, Broomfield, CO 80021 and refer to JON 3.

Principal (IT Professional) needed for management consulting and information technology services company located in Lake Forest, IL. Job duties include: Analyze, design, develop, implement, and provide end user support for computer applications for clients located throughout the US. Provide sustaining engineering for Legacy systems with client server and web-based applications. Develop proprietary and custom code for connectivity to databases using Oracle and Sybase. Use C++, Visual Basic, GUI, Java, and CTI products such as Genesys and Cisco ICM to accomplish tasks. Applicant must have B.S. degree in computer science, math, engineering, business or physics. Applicant must also have 2 yrs. exp. in the job duties listed above or in any computer related occupation which includes skills listed above. $81,500/yr. Send resume & cover ltr. to:
loyalty_employment@eloyalty.com & refer to job #23464.

Software Engineer wanted by Nuventive, LLC to develop Java Code (JSP, Beans, Classes), Write SQL (ANSI SQL, Transact SQL, PL / SQL) to access MS SQL Server 7.0 & Oracle 9i. Min BS with 3-yr exp. using Sun One tech, Apache Tomcat, iPlanet Application server Contact hr@nuventive.com. No calls.

Hexium, Inc. is a new IT company. It has openings for software engineers, web developers, system analysts. Qualified candidates must have BS with substantial experience in ASP.Net, SQL. Travel may required. Please apply at humanresources@hexiuminc.com. EOE.

SAP Basis Administrator to implement and administer a multi-domain multi-user SAP system by developing related security procedures, configuration of SAP with multiple RDBMS, developing landscape client procedures and implements SAP change controls including correction and transportation systems for system performance optimization of site to site connectivity. Requires Bachelor's Degree in Computer Science, Software Engineering, or Electrical Engineering and one year direct experience. Send resumes only, no calls, to: Carl Guenther, Corio, Inc., 9525 W. Bryn Mawr Ave, Ste 110, Rosemont, IL 60018.

Systems Analysts: Design/develop accntng./financial apps. conforming with FASB in Oracle Financials Suite, Oracle RDBMS & related tools, Forms, Reports, MS SQL, Developer/Discoverer, Lotus Notes in various OS. Travel to client sites. Send Resume to 3100 Breckinridge Blvd., Suite 100, Duluth, GA 30096. EOE.

Systems Analyst required by San Jose, CA based software services co. Requires a Bachelor's Degree or its foreign equivalent in Technology or Engineering in electronics or computer science. Must be skilled in TIBCO Integration Platform. Send resume to HR Manager, Varite, Inc., 12 South First Street, Suite 404, San Jose, CA 95113, or e-mail at Careers@Varite.com

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IT Manager - Circulation

The Seattle Times is seeking a seasoned IT Manager to direct daily operations and strategic planning in our Circulation department. This position is responsible for development and maintenance efforts related to all of our Circ. systems and developing technical solutions to meet our business needs. The successful candidate will have the ability to balance priorities, negotiate with vendors, collaborate with colleagues across the company, and implement improved procedures and new technology for the business. You will have bottom-line budget responsibility and will be a key member of both Circulation and IT management. Qualified candidates should have 5+ years IT exp., w/at least 4 years in mgmt or 6 years of proj. mgmt. BS/BA degree with advanced Business or Management Information Technology degree preferred or equivalent exp.

We are a family-owned and operated company and support a drug-free workplace. EOE. Learn more about our company at seattletimescompany.com. Please email your cover letter and resume (single Word document) with job title and job #03-251 to:

st.resumes@seattletimes.com or send to: The Seattle Times Employment / JOB#03-251 PO Box 70 Seattle, WA 98111

SYSTEM ANALYST III (Salem, NH): Will analyze procedures and problems to refine data and convert to programmable form for electronic data processing. Will confer with customer personnel to ascertain specific output requirements. Will support third party applications. Will study existing data handling systems to evaluate effectiveness and designs technical requirements for new and existing systems to improve production or work flow. Will prepare charts and diagrams to assist in problem analysis and submits recommendations for solution. Will plan and prepare technical reports, memoranda and instruction manuals relative to the establishment and functioning of complete operational systems. Will review existing operational systems for cost effectiveness, compliance to standards, and flexibility. Will act as a mentor to lower level systems analysts and may lead some projects. Requirements: Bachelor's degree in Computer Science or related field and two (2) years of experience in the job offered or two (2) years experience in the related occupation of system or software engineering. Also, demonstrated expertise using the following: (1) BEA Weblogic Application Server, (2) Oracle Database Server and UNIX administration; and (3) Actuate or Control M. Offered salary is $85,000/year for full-time employment (min. 40 hours per week) and standard company benefits. EEO. Submit 2 resumes and respond to Job Order # 2004-216, PO Box 989, Concord, NH 03302-0989.

Web Developer/Programmer

Multiple positions available to primarily develop web-based computer applications, applying knowledge of computer programming techniques & systems.

Requirements: Bachelor's degree in Computer Science or related field. Must possess 3 yrs. post-baccalaureate work exp. in position offered or in computer industry. Must be knowledgeable & proficient in (1) one of the following databases (Oracle, VSAM, DB2, SQL Server or Teradata); (2) JAVA; and (3) one of the following high-level languages (VB/ASP, PL/SQL or C/C++). Must be willing to travel & relocate to client sites nationwide frequently. Replies with Ref. Code CW2004 via email (steve.rydzak@sdi-world.com), fax (412-221-2388) or mail (Steve Rydzak, SDI Technologies, 1373 Washington Pike, Suite 103, Bridgeville, PA 15017)

Kanbay is a premier global systems integrator that provides high-quality, high-value solutions to the insurance, banking, credit card, consumer lending and securities industries. We provide a complete life-cycle of services including program management, business analysis, technology planning, architecture, application development, maintenance and support. Our specialized services include business intelligence, package selection, customization, implementation and testing.

The following opportunities are based at our corporate headquarters in Chicago and locations nationwide.

We are seeking candidates with technical skills in some of the following areas: JAVA, J2EE, OOAD, WebSphere, XML, .Net, Ingenium, COBOL, CICS, DB2, JCL, and VisionPlus expertise in an MVS environment.

- **Project Managers**
- **Technical Architects**
- **Project Leads**
- **Sr. Programmer/ Analysts**
- **Associate Consultant**

For consideration, forward response to: Kanbay, Inc., 6400 Shafer Ct., Suite 100, Rosemont, IL 60018. Fax: 847-318-0784. Email: rstewart@kanbay.com. Please reference code CW0304 in all correspondence. Kanbay is an Affirmative Action Employer/EOE organization.

Kanbay

www.kanbay.com

MAXIL Technology Solutions Inc is seeking a Full time Programmer Analyst who has Excellent knowledge in CMM, IEE, Software Metrics, Risk Management, Requirements Review, Develop test Plans, Change Control and Configuration Management. Experience in white box and black box testing/ Manual Testing. Experience with a programming language (ASP, Cold Fusion, Visual Basic) is required. Strong Experience in Database connectivity using DAO, RDO, ADO, ADO, .NET with backend as SQL Server and Oracle.Experience in ActiveX component and COM, DCOM objects of VB. Education Experience: Bachelors/Masters in Science/Engineering with minimum of two Years of experience in Automated Tools like WinRunner, Load Runner, Test Director, Oracle, MS SQL Server and VB.NET, Informatica. Respond by Email to resumes@maxiltechnology.com/877-853-6009(F).

Business Objects has an opening for the position of Sr. Consultant to be based out of our San Jose, CA office.

The position requires a Bachelor's or foreign degree equivalent in CS/IS/Business or related field plus five years of work experience as IT, software consulting or related. The job duties include: Implement, analyze, design and delivery Business Objects Decision Support Systems for F1000 customers. Complement the service offerings of consulting firms, systems integrators, and large customer personnel in architecting, designing, implementing, and integrating business solutions in the enterprise. Identify all technical requirements within assigned account for delivering the solutions directly and for working with corporate support personnel, sales management, and the Field Sales personnel to resolve any technical issues or requirements. Provide technical solutions to customers while identifying new opportunities. Travel extensively throughout the U.S.

To apply for a position, visit our website at www.businessobjects.com/careers or forward your resume (ref CW0304) to: Business Objects Americas, Attn: Staffing, 3030 Orchard Pkwy, San Jose, CA 95134. EOE

Software Developer. Req. Master of Sci. deg. in Comp. Sci., Info. Tech., Eng., Sci., Math, or equiv & 4 yrs. of exp. in the job offered or 4 yrs. of exp. in software development for server-side Java internet applics. & relational database mgmt. systems. All of exp. must include use of HTML, DHTML, JavaScript, & ASP (exp. may be obtained before or after completion of degree.) Must also have at least 2 yrs. exp. w/AWT, Applets, Swing, Servlets, JSP, XML & UML, and must have exp. w/software dev't for broadcast/entertainment industry. Must have Sun Java Programmer certification, & must be an Oracle 8i DBA certified prof. Must be willing to travel 1-to-2 times/yr w/in the US. Provide full life-cycle software dev't & Oracle 8i database admin. expertise towards the design, dev't, deployment & maintenance of new & existing Interactive Digital Entertainment projects. Design, dev. & maintain Java, Servlets, Applets, AWT, Swing, JSP, XML, HTML, DHTML, JavaScript, ASP, & PL/SQL code & administer both dev't. & production Oracle 8i databases. 40 hrs/wk. Send resume to A. Lloyd, Turner Entertainment Network, 1050 Techwood Dr., Atlanta, GA 30318.

Sr. Programmer/Analyst: Analyze, design, develop, test, implement and maintain customized software applications in a client/server environment and/or on multi-tier systems related to Internet/Intranet/E Commerce using EJB and Oracle. Must have Bachelors or equivalent in Computer Science, Math, Engineering or related. Must have 2 yr exp. in job offered or in software development using EJB and Oracle. Will accept a combination of education and experience evaluated by a recognized authority as equivalent to a bachelor's degree. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $72,000/yr. Hrs: 40hr/wk 8:00am-5:00 pm. Please send 2 copies of resume to: Case #200203721, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st Fl., Boston, MA 02114.

Database Administrator (Indianapolis, IN & Waltham, MA): responsible for database management, monitoring, & production support. Apply expertise with InForm electronic data collection software to trouble-shoot functionality problems & deliver regular database extracts to customers, respond to database support incidents, perform database backup & recovery, & ensure database integrity. Administer system, develop software script, & tune performance. Optimize query & system performance on an Oracle database residing on NT servers for transactional & reporting applications. Install system upgrades, manage physical disk resources, perform automated data backups, implement security & integrity controls & monitor data integrity. Will work extensively with ODBC, SQL-*Plus, Microsoft Transaction Server, Microsoft IIS, SQL*Forms, HTML, Perl, Oracle & database development & reporting systems. Min req's: Bachelor's degree in Computer Science, Engineering or a related field, or equiv in work exp., plus 4 yrs exp. in the job offered or in position administering information management systems, including 1 yr with InForm. Must have unrestricted authorization to work in U.S., M-F, 8:30 a.m. - 5:30 p.m., 40 hrs/week. Salary: $80K - $95K/year. Send 2 copies of resume to Case# 200203599, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st Floor, Boston, MA 02114.

Infinite Computing Systems a Cedar Rapids, Iowa Company is seeking qualified computer professionals. Current positions available must meet the following requirements. All positions require at least a Bachelors degree (3 year fgn Bachelor degrees are acceptable). We may have additional positions available in addition to the ones listed. Multiple positions are likely available in some positions. Candidate's salary offered relative to experience and skills. Candidates must be willing to relocate and travel as needed.

A variety of positions are available, which require between 1-5 years of experience in the below-listed skills. Certain positions may require a Masters degree.

- Java, HTML, XML, Weblogic or Websphere
- Expeditor, IDMS, DB2
- ERP (e.g. SAP, Peoplesoft or Oracle Apps)
- Visual Basic, SQL, ASP.net, SQL Server
- Easytreive, QMF, Cobol, CICS, SAS, TSO/ISPF
- C, C++, GUI, Oracle or Informix or Sybase

Please send resume and cover letter to: Raj Inani, President, Infinite Computing Systems, Inc., 230 2nd Street - Ste 214, Cedar Rapids, IA 52401.

IT Technical Expert. Req. Bachelor's deg. (or equivalent educ.) in Comp. Sci., Info. Sys., or MIS & 5 years' exp. in the job offered or 5 years' exp. in the mgmt. of full lifecycle of MS Exchange or Active Directory deployment from initial planning through final implemen. All stated exp. must include MS Exchange or Active Directory rollouts to 20,000 or more seats with at least 15 sites; and the use of Visual Basic Scripting for Active Directory or LDAP (Lightweight Directory Access Protocol). Manage the full lifecycle of MS Exchange and Active Directory deployment projects from initial planning through final implementation. Serve as technical advisor and chief architect in messaging and Active Directory projects, Including messaging system consolidation, implementation, & migration. Apply with resume to: Joe Borcover, Wellpoint Health Networks Inc., 21555 Oxnard Street, Woodland Hills, CA 91367.

SENIOR DATABASE ADMINISTRATOR to administer, design and support MS SQL Server databases and database objects using Enterprise Manager, Query Analyzer and Osql; Analyze, design and support Sybase ASA databases and database objects using Sybase Central and Dbisql; Tune databases for optimum performance using SQL Profiler and relational data optimization techniques, and perform troubleshooting; Design and develop stored procedures, triggers and functions using T-SQL; Perform mass data manipulation on MS SQL Server using T-SQL; Create MS SQL Server backup and recovery protocols; Provide technical support and training to various departments. Require: M.S. degree (or completion of all requirements) in Computer Science, or a closely related field with 1 yr of exp in the job offered or as a Database Analyst; Experience gained before or after completing the educational requirement will be accepted. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Lisa Patz, The CBORD Group, Inc., 61 Brown Road, Ithaca, NY 14850. Attn: Job AK. EEO.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, implement and support application software in a client/server environment using C, C++, Java, CORBA and Visual Basic under UNIX and Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job AC.

We seek exp'd Bioinformatics Software Engineer for data analysis, library design, virtual screening, structure based drug design, rationalization and prediction of structure-activity trends, etc. using Rational XDE, C, SWT, RequisitePro, Java, RMI, J2EE; M.S. or B.S. C/S, CIS or Bioinformatics reqd. Send resumes only to Paramount Software Solutions, Inc., 3350 Riverwood Pkwy., Ste.1900, Atlanta, GA 30339

3 Systems Analyst positions - Must have B.S. or Foreign equivalent in Computer Science, Computer Management or related. Must have 4 yrs. of experience in job offered or 4 yrs. experience in Software Engineering or Software Programming. Candidate is responsible for converting data from project specifications and statements of probability and procedures; preparing work flowcharts, project plans and design documents using business and engineering analysis, math models, computer languages, and data bases; resolving questions of programming, data input/output requirements, and inclusion of internal checks and controls; converting detailed, logical flowcharts to software code and installing, testing, monitoring and maintaining the same; preparing reports, user & instructor manuals and training users; and analyzing, reviewing, and rewriting programs to increase operating efficiency or adapting programming to new requirements. Frequent Travel Required. Must have 4 years of experience in Oracle 8x/9x, C,C++,VC++,C#, COM/DCOM, PL/SQL, Pro*C, ASP, ASP.net and TCP/IP Sockets. Qualified applicants must send resume to VSoft Corporation, S. Viswanathan, 6455 East Johns Crossing, Ste. 450, Duluth, GA 30097.

IT Professionals

Seeking qualified candidates for Sr. & mid-level IT professional positions including: Programmer Analysts, Database Admins, Software Engineers, IT/Software & similar type positions. Candidates must possess MS/BS or equivalent &/or related work exp. Mail resume & references to:

Patel Consultants Corp.
Attn: HR
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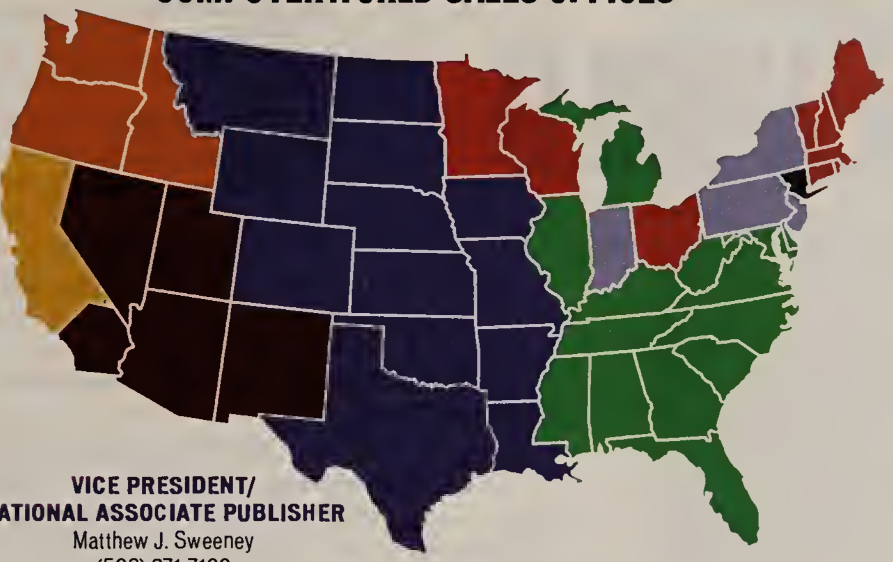

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ADVERTISER'S INDEX

AT&T www.att.com	22/23
BMC Software www.bmc.com	29
Compuware www.compuware.com	31, 33, 35
Enterasys Networks www.enterasys.com	37
Gateway www.gateway.com	2
Hewlett-Packard www.hp.com	12-13
IBM Express Middleware www.ibm.com	54
IBM Personal Computer Division www.ibm.com	26-27
IT Compliance www.ITCInstitute.com	18
Microsoft Integrated Innovation microsoft.com/wssystem	G1-1
Microsoft IT Heroes microsoft.com/officeIT	24
Microsoft Office microsoft.com/officeIT	20-21
Microsoft Software Assurance www.microsoft.com	16/17*
Microsoft Visual Studio msdn.microsoft.com/visual/think	6-7
Mobile & Wireless World Best Practices www.mwwusa.com	17
Network Associates www.networkassociates.com	9
Remedy a BMC Software company www.remedy.com	19
SAP www.sap.com	41
Sharp www.sharpusa.com	53
Verizon Wireless www.verizonwireless.com	11

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ADAPTEC CORP. 10
ADAPTIVE TEAM COLLABORATION INC. 25
AFFILIATED COMPUTER SERVICES INC. 14, 19
AIG INTERNATIONAL INC. 1
ALACRITECH INC. 10
ALBERTSONS INC 52
ALIDADE INC. 42
ALPHACHIMP STUDIO INC. 42
AMDOCS LTD. 15
AMERICAN BUSINESS MEDIA 8
AMTRAK 1
AXA FINANCIAL SERVICES LLC 22
AXIS COMMUNICATIONS INC. 1
BAIN CAPITAL LLC 4
BANK OF MONTREAL 1
BEA SYSTEMS INC. 36
BLOCKBUSTER INC. 45
BLUE CROSS & BLUE SHIELD OF RHODE ISLAND 15
BOSCOV'S DEPARTMENT STORE LLC 10
BROCADE COMMUNICATIONS SYSTEMS INC 30
BUSINESS OBJECTS SA 14
CALIFORNIA STATE AUTOMOBILE ASSOCIATION 15
CAP GEMINI ERNST & YOUNG U.S. LLC 15
CAPELLA UNIVERSITY 16
CARNEGIE MELLON UNIVERSITY 1
CERT COORDINATION CENTER 1
CIMDATA INC. 4
CISCO SYSTEMS INC. 14, 30, 42
CITRIX SYSTEMS INC. 8
CNA INSURANCE 5
CODAGEN TECHNOLOGIES CORP. 25
COMPASS BANK 5
COMPUTER SCIENCES CORP. 19
CROSS COUNTRY HEALTHCARE INC. 10
CURAM SOFTWARE 25
DARTMOUTH COLLEGE 42
DELOITTE & TOUCHE LLP 1
DELOITTE CONSULTING 15
E.PIPHANY INC. 15
EBAY INC. 45
ECKERD CORP. 45
EKTRON INC. 8
ELECTRONIC DATA SYSTEMS CORP. 1, 19, 4
ELECTRONIC INDUSTRIES ALLIANCE 1
EMULEX CORP. 30
ENTERPRISE STORAGE GROUP INC. 10
ERNST & YOUNG LLP
EUROPEAN COMMISSION 4, 14
FARM CREDIT SERVICES OF MISSOURI 6
FEDERATED MUTUAL INSURANCE CO. 23
FEDEX CORP. 15
FIREMAN'S FUND INSURANCE CO. 25
FLORIDA COMMUNITY COLLEGE AT JACKSONVILLE 23
FORRESTER RESEARCH INC. 8, 25, 44
GARTNER INC. 15
GATECHANGE TECHNOLOGIES INC. 34
GENERAL ELECTRIC CO. 14
GENERAL MOTORS CORP. 1
GLOBAL SECURITY CONSORTIUM 1
GLOBALSPEC INC. 8
GOOGLE INC. 8
HARVARD UNIVERSITY 45
HEALTH NET INC. 14
HERZUM SOFTWARE LLC 25
HEWLETT-PACKARD CO. 1, 6, 19
HITACHI DATA SYSTEMS INC 30
HITACHI GLOBAL STORAGE TECHNOLOGIES INC. 30
I2 TECHNOLOGIES INC. 4
IBM 4, 14, 25, 32, 36, 38, 42
IBM GLOBAL SERVICES 19
IDC 30
IDG RESEARCH SERVICES 15
INFINEON TECHNOLOGIES AG 34
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA 16
INTEL CORP 1, 10, 34
INTEREX 1
INTERMEC TECHNOLOGIES CORP 45
INTERNET SECURITY ALLIANCE 1
IT DEUSTO 1
IT MANAGEMENT PARTNERS INC. 44
J.D. EDWARDS & CO. 4
JACKSONVILLE UNIVERSITY 45
JOHNSON COUNTY COMMUNITY COLLEGE 10
KIRKLAND & ELLIS LLP 39, 40
KPMG INTERNATIONAL 1
LANDS' END INC. 19
LAWRENCE BERKELEY NATIONAL LABORATORY 30
LIBBEY INC. 4
LINCOLN NATIONAL CORP. 15
LONGS DRUG STORES CORP. 1
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MASSACHUSETTS PORT AUTHORITY 1
MATANUSKA TELEPHONE ASSOCIATION INC. 4
MATTERFORM MEDIA INC. 8
MAYER, BROWN, ROWE & MAW LLP 39
MCGILL UNIVERSITY 14
META GROUP INC. 10, 25
MICROSOFT CORP. 1, 4, 5, 8, 10, 14, 18, 28, 36, 38
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY 1
NATIONAL-LOUIS UNIVERSITY 18
NETIQ CORP. 5, 38
NETSCALER INC. 8
NETSCREEN TECHNOLOGIES INC. 36
NETWORK APPLIANCE INC. 10
NEWGISTICS INC. 45
NEXTSCALE INC. 42
NOKIA CORP 52
NORTEL NETWORKS LTD 8
NORTHERN ILLINOIS UNIVERSITY 10
NORTHROP GRUMMAN CORP. 18
NOVELL INC. 10, 23
OBJECT MANAGEMENT GROUP INC. 25
OBJECTVIDEO 1
OMGEO LLC. 14
OPENMPE INC. 1
ORACLE CORP. 8, 10, 14
PALM INC. 36
PEGASYSTEMS INC. 15
PEOPLESOFT INC. 4, 14, 16
PFPC INC. 25
PHOENIX TECHNOLOGIES LTD 8
PRICEWATERHOUSECOOPERS LLC 1
QLOGIC CORP. 30
QUICKSILVER TECHNOLOGIES INC. 34
RCA CORP. 32
RED EARTH SOFTWARE LLC 38
REDLINE NETWORKS INC. 8
RFID INC. 52
RITE AID CORP. 45
RSA SECURITY INC. 38
SAP AG 14
SARNOFF CORP. 32
SEARS, ROEBUCK AND CO. 19
SECURITIES INDUSTRY ASSOCIATION 14
SEGUE SOFTWARE INC. 8
SHAW PITTMAN LLP 39
SIEMENS AG 23
SILVER LAKE PARTNERS LLC 4
SKYETEK INC. 52
STARGATE DIGITAL 10
SUN MICROSYSTEMS INC. 8
SUREPAYROLL INC. 44
SUSE LINUX AG 10
SYMANTEC CORP 36
SYRACUSE UNIVERSITY 42
TARGET CORP 52
TATUM PARTNERS 45
TEK-TOOLS INC. 23
THE EAST COBB GROUP INC. 10
THE OPEN GROUP 1
THE TANEJA GROUP 30
THE YANKEE GROUP 14
TIER TECHNOLOGIES INC. 25
TOSHIBA CORP. 32
TOWERGROUP 14
TROY STATE UNIVERSITY 45
U.S. DEPARTMENT OF DEFENSE 4,52
U.S. DEPARTMENT OF HOMELAND SECURITY 1
U.S. SECURITIES AND EXCHANGE COMMISSION 4, 14
UAL LOYALTY SERVICES INC. 30
UGS PLM SOLUTIONS 4
UNITED AIR LINES INC. 30
UNIVERSITY OF ARIZONA 45
UNIVERSITY OF CALIFORNIA, LOS ANGELES 23
UNIVERSITY OF IOWA 45
UNDVA INC. 45
VERISIGN INC. 36
VERITAS SOFTWARE CORP. 8, 36
VISION SERVICE PLAN 15
WACHOVIA CORP 44
WAL-MART STORES INC. 62
WARBURG PINCUS LLC 4
WASTE MANAGEMENT INC. 45
XIMIAN INC. 10
YELLOW TECHNOLOGIES INC. 45

Continued from page 1

Amtrak

aren't screened against any DHS terrorist watch-list database.

Amtrak declined to comment on what, if any, security measures beyond bomb-sniffing dogs have been deployed to protect the rail system.

But technology and security analysts said there are IT-based systems available today that can substantially improve Amtrak's security in the near term without having a negative impact on passenger movement and convenience.

For example, a $4,000-per-camera license from Reston, Va.-based ObjectVideo can provide security managers with software that lets them set rules for detecting suspicious behavior using existing security cameras. The company just last month signed a distributor agreement with Madrid-based IT Deusto, and the Madrid metro system is now planning a pilot project using the software. Since the attacks in Spain, a demonstration of the technology during a U.S. embassy-sponsored technology expo scheduled for next month in Madrid has been sold out, according to ObjectVideo CEO Raul Fernandez.

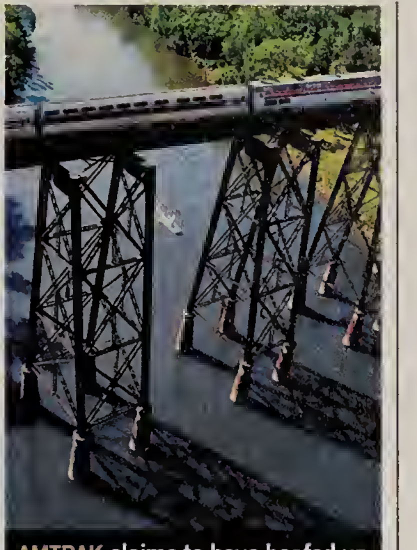
"The problem with large closed-circuit television infrastructures is there are a lot of cameras, but nobody's watching them," said Fernandez. "That's where technology comes in." Had ObjectVideo's software been deployed in Madrid, it would likely have been able to detect the bombers leaving backpacks behind and would have automatically dispatched security personnel to investigate, he claimed.

For remote areas of the U.S. rail system, Axis Communications Inc., a Lund, Sweden-based surveillance firm, has developed a "network camera" system that can be operated over a company's existing IT infrastructure or the excess fiber-optic cable that typically runs alongside U.S. railroad corridors.

Fredrik Nilsson, CEO of Axis, agreed that most security cameras aren't monitored. "You need to have enough intelligence built in so that the cameras that are being watched are the ones monitoring areas where something is happening," he said.

The company has integrated video motion-detection technology into each network camera and can combine time-stamped recordings with physical security events to give security managers "context," said Nilsson. Alerts can then be sent in the form of text messages to cell phones or e-mails with images attached.

"But kids spray-paint and disable security cameras all the time," said Ken Barney, a transportation security consultant at Plano, Texas-based Electronic Data Systems Corp. "So the other way to do it is to place a forward-looking sensor on the vehicle to look ahead." Barney said that adding an alert mechanism similar to the General Motors Corp. OnStar system used in automobiles would be easy to do immediately and would provide a critically needed alert mechanism for emergencies in remote regions.



AMTRAK claims to have beefed up electronic monitoring of bridges and tunnels in the aftermath of the Madrid terrorist attacks.

Barry Ptashkin, a railroad security analyst at EDS, said networked forward-looking sensors or track sensors that include GPS- and RFID-based tracking systems could help improve security in the near term. While those technologies are widely used by freight trains, they're not typically in use for passenger trains, Ptashkin said.

"Once this data is captured, it can be integrated into a uniform format and brought into a data warehouse that would give quick indicators of high-risk areas or key performance indicators and patterns that require investigation," said Ptashkin. "Even if it's limited, it's important to just start the concept and keep it moving." **45590**

Continued from page 1

Risk Index

firmed that the GSC is working on delivering the framework and said it will be available by this summer.

All of the Big Four accounting firms were unable to provide comments on their participation by press time.

"[The RPI] will allow third-party auditors to come in and make a judgment as to whether or not you are complying with established cybersecurity practices," explained Larry Clinton, chief operating officer at the Internet Security Alliance. ISA members that score above a certain level on the RPI could qualify for lower insurance rates.

The Arlington, Va.-based ISA is a collaborative effort between the CERT Coordination Center at Carnegie Mellon University in Pittsburgh and the Electronic Industries Alliance, a federation of trade associations.

Robert A. Parisi Jr., senior vice president and chief underwriting officer for AIG's eBusiness Risk Solutions group, said he wasn't aware of the specifics of the arrangement with the ISA. But ISA members assessed by means of tools such as the RPI will be viewed as "highly desirable risks and ones that we want to price in a highly competitive fashion because we view them as doing the right thing," Parisi said.

> **"When you have all of the big accounting firms applying a certain standard, it carries a certain amount of weight.**
>
> **ROBERT A. PARISI JR.,**
> AIG INTERNATIONAL INC.'S EBUSINESS RISK SOLUTIONS GROUP

"This is an attempt to come up with a kind of universally agreed upon set of values and benchmarks that can be applied across industries" for measuring a company's exposure to cyber risk, Parisi said. "When you have all of the big accounting firms applying a certain standard, it carries a certain amount of weight," he added.

The relative lack of broadly applicable quantitative risk-measurement tools for the critical infrastructure and for enterprise IT has been a long-lamented issue among security professionals.

There are standards such as the ISO 7799, ISO 1799 and those from the National Institute of Standards and Technology that are currently used by organizations as benchmarks and assessment frameworks. But there are few widely accepted standards that are comparable to the generally accepted accounting principles and generally accepted auditing standards that auditors in the financial services industry are able to use, Parisi said. "At the moment, there really isn't an equivalent to that when it comes to information security."

Formidable Challenges

Developing a framework such as the RPI is highly desirable but could be a huge challenge, users said. For one thing, it's extremely hard to model risk when it comes to cybersecurity, said Robert Garigue, chief information security officer at Bank of Montreal.

"When we are looking at events and the predictability of good or bad outcomes in cyberspace, we don't have much historical data to look at," Garigue said. It becomes extremely hard, for instance, to predict with any kind of validity the number of virus attacks that might take place over the next year, especially in an environment where the technology and application infrastructure are changing so rapidly, he said.

"It is very difficult to do because every network is different," said Dennis Treece, director of corporate security at the Massachusetts Port Authority in Boston.

Mergers, acquisitions, upgrades and a lack of standards in purchasing over the years have contributed to a situation that makes quantifiable risk assessment difficult, Treece said. "It is nearly impossible to make any valid assumptions beyond 'We're a Microsoft shop' or 'We're mostly switched' or the like," he said. **45597**

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RFID Kick-start

WORRYING ABOUT RFID? Now's a good time for it. Really. And not just because the topic of radio frequency identification tags is hovering like a dark cloud over your IT shop. Last week at the big CeBIT trade show in Hanover, Germany, dozens of vendors were showing RFID-related products — including cell phone maker Nokia, which announced an add-on kit for people who want to use their Nokia phones to read RFID tags.

Which means RFID is now officially mainstream. And learning RFID on the cheap is now officially practical.

And considering how much some companies are likely to spend on RFID over the next few years, cheap is a very attractive price.

Face it: Right now RFID is probably a mystery to you and your IT staff. Oh, you may have read a few articles on RFID. You may even have seen demonstrations. But for all you know, the articles are wrong and the demos are rigged.

Unless you're already hip-deep in an RFID implementation — because Wal-Mart or Target or Albertsons or the Defense Department has set a 2005 deadline for you to put RFID tags on every pallet and carton you ship their way — you and your people don't know RFID.

And you should. You know that. If you make or move any kind of product, eventually you'll need to start building some RFID expertise. But there's only one way to do that: Put RFID technology in the hands of your IT staff and let them kick it around.

But usually there's a nasty trade-off. If you bring in a technology early in its life cycle, your staff gets the maximum exposure and the most time to figure it out. Unfortunately, early on is when any new technology is likely to be most expensive.

You can wait until the price comes down. But then you could find yourself racing to meet a mandate that customers or your CEO has set for getting that technology up and running — and making all your early mistakes against a hard deadline. That gets expensive, too.

But right now, there's a sweet spot for RFID. You've still got time — and RFID starter technology has gotten cheap.

Right now you can buy RFID evaluation kits from companies like SkyeTek Inc. in Boulder, Colo., and RFID Inc. in Aurora, Colo. For $750 or less, you get an RFID reader, sample RFID tags, software — pretty much everything your techies need to start getting comfortable with this stuff.

No, it's not enough to do a pilot project. Think of this as the prepilot stage, when your staff can try out RFID, experiment with it, kick the tires and get a real gut-level sense of how it works and what it can do.

And you can most likely pay for it all out of petty cash.

Of course, those RFID products at CeBIT are a sign of what's to come. By the end of the year, we'll be awash in RFID-enabled devices. Wait another six months and you'll see RFID reaching all the way down into consumer products — cell phones, handhelds computers, plug-and-play PC peripherals. Ordinary people, or at least tech-savvy hobbyists, will be making and scanning their own RFID tags. The sweet spot will have gotten sweeter.

But if you wait, you've lost that head start.

You've lost something else, too. For the past few years, the people in your IT department have been grinding away. The hours have been long, the layoffs have been depressing, and, with no money for new projects in the budget, the technology hasn't exactly been exciting.

Now you've got an opportunity to remind them that there's a future for them in your IT shop. A future with challenging technology. A future that will require honing old skills and developing new ones. A future you want them to get ready for.

Don't waste that opportunity. Quit worrying about RFID and start doing something about it now — on the cheap. 45552

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Better Safe Than Sorry, Right?

Virus invades the network at this real estate agency's main site, so IT consultant pilot fish advises disconnecting the agency's remote office. Fish cleans up main office, then heads for the other site – and finds a baffled staff. "We got the message to disconnect, but we didn't know exactly *what* to disconnect, so we disconnected everything," office manager says. And it takes fish all night to reconnect every network cable, mouse, keyboard, monitor and power cord.

Aha!

Nurse at this state hospital tells support pilot fish that she's getting a strange error message on her PC. Fish immediately diagnoses the problem: "It's the monitor's 'no signal' message," he tells the nurse. "All you have to do is turn the computer on." "You mean the box thingy that sits on the floor?" she replies. "You guys took that away yesterday to fix some other problem."

Just Trying to Cooperate

User says his PC is acting strangely, closing some applications and opening others on its own. Support pilot fish can't detect a virus or any other problem with the PC, despite returning to the user's desk several times. But user keeps complaining about it. "I was in early one morning, so I went to check that PC before anyone arrived," says fish. "To my surprise, I found refrigerator magnets stuck all over the machine. When confronted, the user said he took them off when I came down because I had told others not to put magnets on their PCs."

Hey, Help Is Help

Temp claims she's well versed in PC use, but she calls this IT help desk pilot fish every half hour for three weeks. Turns out she's not good at doing anything else either, and soon she's gone. Four months later, fish's phone rings with a caller asking questions about software that fish's company doesn't even use. "It was the temp," groans fish. "She was now temping at a local university, but she called the one number she knew could help her."

And Thanks for Your Support

CIO tasks pilot fish with doing risk assessment on a major project, and fish determines the biggest risks: The project sponsor is ineffective, and the project manager is worse. "Big problem: The sponsor is the CIO, and the PM is his contractually employed buddy," fish says. Fish's report gets buried. Project runs late and $1.5 million over budget. And in fish's next evaluation, CIO writes, "I wonder sometimes if you have the backbone required for your job."

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